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THESIS

A MULTIVARIATE ANALYSIS OF NAVY FIRST TERM ENLISTED TURNOVER INTENTIONS

by

Sandra L. Christensen

March 1983

Thesis Advisor: G. W. Thomas

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A Multivariate Analysis of Navy First Term Enlisted Turnover Intentions

by

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requirements for the degree of

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I. INTRODUCTION

Sustaining the All Volunteer Force for both peacetime manning and wartime mobilization depends upon the services' ability to retain the requisite number of qualified and experienced men and women. The available supply of experienced service personnel is affected by both first term attrition rates and retention rates. Retention is consistently suggested as the principal, singular manpower problem faced by the Department of Defense and the Navy in recent years [Korb, 1982; Pierce, 1981; Coleman, 1982]. The product of first term attrition losses and low retention rates is increased recruit accessions. Therefore a key to reducing recruiting costs and entry level quotas is to increase first term retention.

The retention of enlisted personnel at the end of their first active duty obligated service (EAOS) is affected by many factors including perceived alternate opportunities in the private sector and military career incentives. Some important reenlistment incentives applied by the services have been expanded promotion opportunities, favorable assignment locations, monetary compensation, and certain quality of life improvements.

Declining reenlistment trends and significant shortages of non-commissioned officers (NCOs) particularly in enlisted paygrades E-5 through E-9, have been evident for several

years in all services, but have particularly plagued the United States Navy [Department of Defense, 1980]. The impact of this shortage in the Navy has resulted in the deficit manning of technical ratings (occupations), the impairment of fleet readiness and the shift to a younger enlisted force [U.S. Congress, 1981]. The largest shortfall of petty officers, about 23,000 (E-5 through E-9), occurred in 1980, after which declining reenlistment and retention rates were arrested by a deteriorating national economy and by significant compensation incentives enacted by Congress with the restoration of pay scales compatible with the civilian sector [U.S. Congress, 1981; U.S. Congress, 1982; Maze, 1982a].

Congressional support of increased military compensation positively affected the DOD aggregate figures of NCOs. As indicated in Table I, reenlistment rates for first-term across DOD increased from 37% in FY79 to 39% in fiscal year 1980 and 43% in 1981. As shown in Table I, career reenlistments achieved a 76% level at the end of fiscal year 1981. The progress of retention continues to receive preferential attention by Navy personnel managers [Department of Defense, 1980].

The petty officer shortfall is expected to decline from 1980 through the next five years, but it will take a long time to recover fully from the cumulative and detrimental impact of the personnel deficit. The direction of this prior NCO shortage continues to be monitored by DOD (see

TABLE I

DOD Reenlistment Rates, FY 1975-82*

Category	FY 1975	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982 (9 Months)
First-Term	37	37	37	39	43	58
Career	81	71	68	70	76	85

*Reenlistments shown as a percentage of those eligible to reenlist.

Source: Weinberger, Casper (Chairman), Military Manpower Task Force, October 1982, p. III-4.

Table II). By the end of fiscal year 1983, it is anticipated that the projected shortage will drop to 17,800 as indicated in Figure 1 [Maze, 1982a, Weinberger, 1982]. Actual strength estimated at a time of fleet expansion is based upon assumptions of sustaining favorable recruiting and retention in the future.

Money appears to be the most professed prescription for solving personnel shortages [Pierce, 1981]. Military compensation will have to keep step with compensation incentives offered by the civilian sector in order for the service to remain as an attractive economic alternative. Otherwise low retention will result along with high turnover rates.

One method by which the Navy promotes retention and attempts to offset the petty officer manning gaps is by the Selective Reenlistment Bonus (SRB) program [Maze, 1982b].

TABLE II

NCO Shortages as a Percent of Authorized NCO's, FY 1981

Service	Shortage (%)	
Army	1	Note 1
Navy	10	
Marine Corps	8	Note 2
Air Force	0	Note 3
DOD	4	

Source: Weinberger, Casper (Chairman), Military Manpower Task Force, October 1982, p. III-16.

Notes:
1. Army's aggregate NCO shortage declines in FY74 to 3,000 in FY80. It is anticipated that this shortage will be eliminated after FY83.
2. The Marine Corp's aggregate shorfall of 4,000 NCOs is primarily due to an increase in FY80 and FY81 end strengths. This shortage is expected to be eliminated after 1984.
3. The Air Force has no aggregate shortage; it does have 5% skill shortage of NCOs (10,000) and a 5% average in other skills.

The disadvantages of the bonus program are its inconsistency and unpredictability. The bonuses vary by rating and are subject to annual readjustments predicated upon the manning level and demand for the rating. The advantage of the SRB program is its tremendous cost savings from retaining experienced personnel, thereby reducing required investments in recruiting and training new personnel [Enns, 1977; Maze, 1982b]. Every dollar spent on SRB is estimated to save $2.50 in

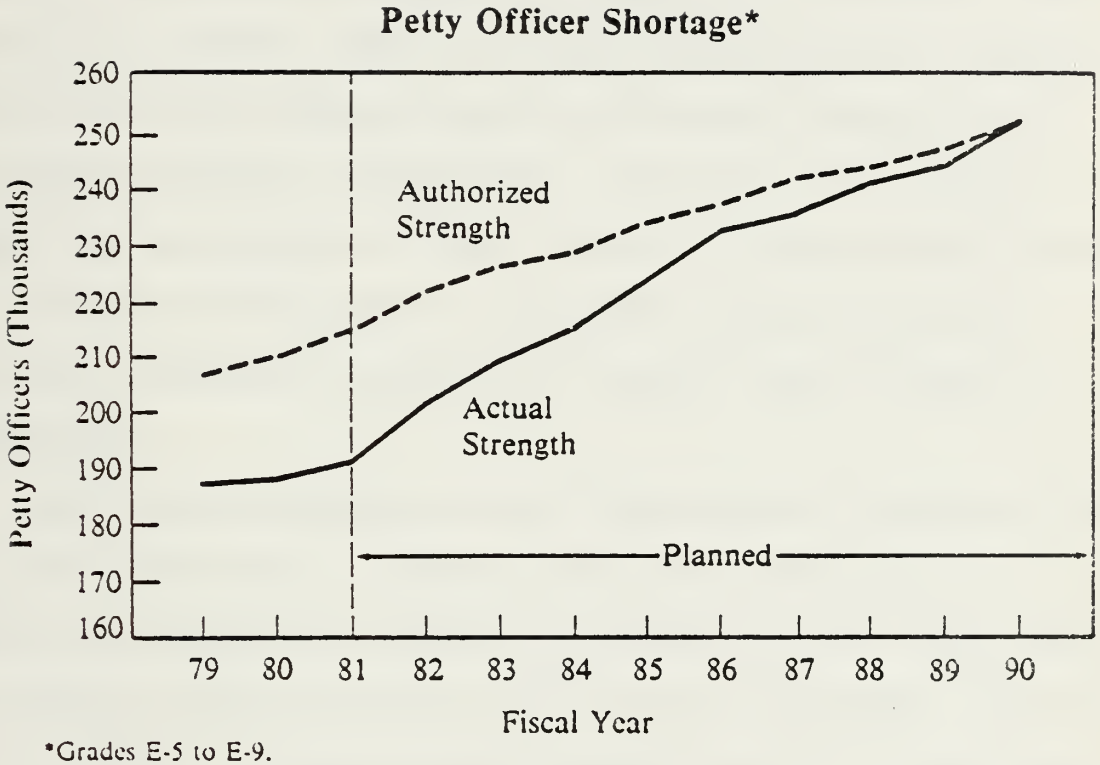


Figure 1. Petty Officer Shortage

Source: Weinberger, Casper (Chairman), Military Task Force, October 1982, P. III-18.

recruiting and training costs [Maze, 1982b]. However the SRB program in general appears to be policy-driven and only a short-term fix for a long-range personnel shortage problem [Iosue, 1982].

Relatively few research studies on enlisted personnel have focused on the factors which influence the service member's decision to reenlist at the end of the EAOS. More empirical research needs to be done concerning the relationship among both pecuniary and non-pecuniary factors which influence voluntary separation. Personnel policy makers could use the results of such research to both direct monies with more efficiency and to undertake effective policy changes concerning non-pecuniary factors such as work conditions.

This thesis examines a set of explanatory variables which are both pertinent to turnover among enlisted personnel and which are empirically available through the 1978 Department of Defense Survey of Officer and Enlisted Personnel [Doering et al, 1981]. A multivariate turnover model is constructed to illustrate the relationships among and between important pecuniary and non-pecuniary determinants of turnover. Statistical evaluation of the turnover model should provide insight into the relative significance of the examined determinants of retention.

Chapter II introduces the concept of turnover and discusses its principal aspects. Different civilian and military terminology for turnover will be discussed. The chapter

also reviews literature relevant to the turnover process for both the civilian population and for reenlistment of military personnel.

Chapter III presents the methodology selected to study turnover. A description of the data base is provided and an initial conceptual model of turnover relative to reenlistment is presented. Categories of the determinants of turnover are discussed. Major independent candidate variables and their measures are presented. Finally the chapter discusses the methods and procedures employed to perform statistical analyses.

Chapter IV presents the results of the application of the turnover model to the data findings. The interrelationships among key determinants and the interrelationship between the explanatory variables with reenlistment intentions will be explored through multiple regression. A multivariate analysis of the primary determinants of turnover (retention) is presented along with a discussion of the statistical relationships. Policy implications of the analyses in Chapter III are outlined and directions for future research are discussed.

II. THE CONCEPT OF TURNOVER

A. TURNOVER AS VOLUNTARY SEPARATION

Turnover is one type of labor mobility [Price, 1977]. For the purposes of this thesis, turnover represents the process of movement of an employee out of an organization. In this process an individual first evaluates his job, weighing external and internal factors unique to the situation, and examines perceived alternate opportunities. When turnover occurs, this cognitive process leads to a voluntary decision to leave the job [Price, 1977, p. 5-8]. The decision to quit or stay is of significance to the individual. The employee who leaves represents both an individual and aggregate behavioral phenomenon to the organization [Baysinger and Mobley, 1982]. Neither an individual leaver nor aggregate separations can be isolated from the impact or influence of the other. Productivity, absenteeism and turnover have been identified as three criteria which are recognized by employers as distinguishing characteristics of each employee [March and Simon, 1958].

In studies pertaining to the civilian population, terms synonymous with turnover often used are: mobility, labor turnover, withdrawal from work, absence, leavers, dropouts, migration, rotation, layoffs, quits or discharges [Baysinger and Mobley, 1982]. By contrast, research focusing on the military often uses such terms as quit rate, attrition,

reenlistment, and separations [Price, 1977]. In this thesis, turnover pertaining to enlisted military will be defined as "an individual's voluntary separation at the end of active obligated service (EAOS)."

Employee turnover has been of continual interest to personnel and management specialists since the early 1900's [Price, 1977]. Research psychologists have examined turnover in a large number of organizational settings, and the study of turnover has implications for other social sciences as well as for management, industrial relations, and economics.

Research on turnover has important consequences for both the individual and the organization [Porter and Steers, 1973]. If an organization employs a force of inexperienced employees, it may experience high turnover rates. Reliance on such personnel increases corporate costs for recruiting and initial training. In addition, inexperienced employees may demonstrate less of a commitment to the employer because of a shorter organizational affiliation. At the personnel policy-making level of the organization, turnover rates become a statistic to be monitored and managed for their impact on fixed costs and employee work relationships.

Turnover is important as a subject of study and is likely to remain a key focus in future personnel research. The practical advantages of analyses at the individual level will undoubtedly be beneficial for aggregate level empirical studies.

Turnover research offers insight for human resource management. Economists derive testable hypotheses about turnover which focus on the aggregate behavior of individuals [Price, 1977]. Psychologists concentrate on the individual cognitive differences leading to leave/stay decisions. Personnel policy formulators must interpret research results to make useful and accurate predictions about possible quit behavior [Price, 1977].

According to Price (1977), voluntary turnover is studied more often than involuntary turnover for three reasons. First, as illustrated by the manufacturing industry in Table III, voluntary turnover represents the largest category of the separation in the civilian labor force. Price indicates that this would not be so if unemployment were high. In that situation, a high rate of compulsory separations would result from such events as excessive layoffs, factory closures, or employee strikes. Secondly, voluntary job leavers represent a fairly homogeneous sample which makes the testing of research theories somewhat easier. Thirdly, the cohort represented by voluntary turnover is more subject to control by management compared to other forms of voluntary separations, such as retirements or deaths [Price, 1977].

Through the use of surveys, analysts are able to isolate and measure factors which influence the process of turnover. The linkages between the predictors and the ultimate event of separation permit researchers to design models which may predict the variables which lead to job leavers.

TABLE III

Labor Turnover Rates in Manufacturing: 1960 to 1980
(Rate per 100 wage and salary workers per month)

Item	1960	1965	1970	1972	1973	1974	1975	1976	1977	1978	1979	1980
Accessions[1]	3.8	4.3	4.0	4.5	4.8	4.2	3.7	3.9	4.0	4.1	4.0	3.5
New hires	2.2	3.1	2.8	3.3	3.9	3.2	2.0	2.6	2.8	3.1	2.9	2.1
Separations[2]	4.3	4.1	4.8	4.3	4.7	4.9	4.2	3.8	3.8	3.9	4.0	4.0
Quits	1.3	1.9	2.1	2.3	2.8	2.4	1.4	1.7	1.8	2.1	2.0	1.5
Layoffs	2.4	1.4	1.8	1.1	.9	1.5	2.1	1.3	1.1	.9	1.1	1.6

[1]Includes rehires.

[2]Includes discharges and military and miscellaneous separations

Source: U.S. Department of Commerce, Bureau of Census, Statistical Abstract of the United States, 1981 (102 ed.). U.S. Dept. of Commerce. GPO: Washington, D.C. Dec. 1981, p. 389.

B. REVIEW OF CIVILIAN RESEARCH

Early literature about turnover centered on the manufacturing labor force both nationally and internationally [Price, 1977]. Muchinsky and Tuttle (1979) briefly discuss five frequently cited reviews of turnover literature authored between 1955 and 1973. Muchinsky and Tuttle state that the focus of the first three review studies [Brayfield & Crockett, 1955; Hertzberg, Mausner, Peterson and Capwell, 1957; Varoom, 1964] was on the relationship of turnover to job-related attitudes and satisfaction. The consensus of these three reviews indicated individual turnover was related to job-dissatisfaction. Muchinsky and Tuttle commented that the views were restricted to the examination of a single set of predictors. Porter and Steers' (1973) review of the literature, like that cited for Varoom (1964), showed consistent negative relationships between job satisfaction and the propensity to leave jobs. The review of Varoom's research found that workers who are highly committed to their jobs are more likely to stay in the job longer.

The remaining reviews to be cited by Muchinsky and Tuttle were those of Schun (1967) and of Porter and Steers (1973). Schun focused on a collection of studies of prediction of turnover by means of a variety of variables including personality and vocational and biographical information [Muchinsky and Tuttle, 1979; Porter and Steers, 1973]. The review by Porter and Steers (1973) will be discussed at length because

of the scope of its analysis and the foundation it establishes for this thesis.

Porter and Steers (1973) provided a comprehensive, qualitative and critical review of research about the factors affecting civilian turnover and absenteeism for twelve years preceding 1973. Job satisfaction appeared to play a vital role in an employee's decision. Specific factors related to leaving behavior (withdrawal) were divided into four groups: (1) organization, (2) immediate work environment, (3) job content, and (4) personal factors.

Organizational factors included pay, promotion, and organizational size. Pay and promotion had more bearing on separation decisions when perceived as inequities by individual employees. An employee will continue to contribute his time and energies so long as he believes his rewards are equitable. The impact of organizations size on turnover is small since separation rates seem steady across organizations of all sizes.

Immediate work environment include supervisory style, work unit sizes, and co-worker interaction variables. Turnover is reported as negatively related (no level of r indicated) to supervisory style, as is favorable peer group interaction. Several studies examined specific facets of supervisory behavior in relation to turnover, and significant differences existed. Research on supervisory style revealed two interesting findings. Unfavorable attitudes

were experienced by leavers about performance feedback from the supervisor and there were obvious discrepancies about job goals between leavers and supervisors.

Relatively few studies examined the relationship of work-unit size to turnover. Studies that Porter and Steers were able to find preceded 1965, with no further research being published through 1973. However, in three out of four studies of blue-collar workers by Porter and Lawler (1965) turnover was found to be greater in larger units. Nevertheless, insufficient evidence is available to make any useful conclusions about work unit size and managerial personnel. A possible explanation for the results from the blue-collar studies might be that larger groups do not provide sufficient cohesiveness, identification, and communication for the average needs of individual members.

Overall worker reaction to task repetitiveness, job autonomy and role clarity were used to measure job content. Dissatisfaction with task repetivieness, perceived job autonomy and role clarity were positively linked to turnover. Studies about job content which explored both worker and managerial populations yielded similar results. If role clarification positively contributed to job satisfaction and to a congruence between job expectations and actual job experiences, it was found to have a decreasing effect on turnover. The need for periodic role clarification and a redefinition of expectations between the organization and the employee was found to be necessary.

Age, tenure, vocational interest, personality characteristics and family considerations were used to measure personal factors. It was noted that turnover is generally inversely related to age and tenure. These relationships are not surprising since a person more senior in age or experience would be expected to show a stronger preference for job security and would be less likely to leave a job. As age or tenure increase, predicting job retention more accurately becomes easier. Turnover also appeared to be positively related to similarities between job requirements and vocational interests. The effect of family size on turnover had been insufficiently studied to this date (1973).

In addition to the studies highlighted above, several other studies have been specifically included here for their examination of turnover and their treatment of explanatory variables.

Porter et al (1974) investigated organizational commitment and job satisfaction as they change over time in relation to turnover. Their work complements earlier research compared with Lefkowitz and Katz (1969) who had reported earlier that constructs associated with turnover, and measured by attitudes, change over time. Using a questionnaire and a job description index, 60 psychiatric technicians were surveyed over a 10.5 month period to examine the relationships between six attitudes and turnover. The respondents were divided into two groups, stayers and leavers. Porter et al found age, gender and education were similar for both groups. The results of discriminant analysis suggested that an

individual's attitudes become strong and accurate predictors of turnover the closer the individual approached the actual point of termination. Commitment to the organization, and satisfaction with promotion, and work itself were the most important variables related to turnover. Satisfaction and work were measured by Job Descriptive Index. Evidence indicated that a general decline in attitude about the organization occurs as the individual gets closer to the point of leaving.

Porter and Crampton (1976) investigated the relationship between organizational commitment and turnover among a sample of 156 managerial trainees. The sample was organized into stayers and leavers. Data were collected by use of questionnaires from the first day of employment until termination or 15 months had elapsed, whichever was earlier. The results examined by analysis of variance, indicated that trainees who voluntarily separated during the 15 month employment period, showed a noticeable decline in commitment prior to the actual departure. The study found that attitudes about organizational commitment were different between stayers and leavers at day one. As a conspicuous decline in commitment occurred, voluntary separation was likely to occur in the near future.

Mobley (1977) presented a heuristic model of the employee turnover process. To gain a better understanding of the relationship of job satisfaction to turnover, he examined the middle part of the decision process to quit.

Porter and Steers (1973) had shown that intention to leave may precede dissatisfaction. Mobley (1977) however believed that the intention to leave was instead the decision which preceded job dissatisfaction. Mobley (1977) measured the pattern of correlations among several potential explanatory variables using regression analysis. He suggested that over time unfavorable attitudes generally become stronger as the separation point draws nearer, and that a person's attitudes towards the organization were more significant than job attitudes when it comes to the decision about quitting. Mobley's model was of value in supplying the framework for empirical research from which a model of turnover could be derived. There appears to be a lack of research relative to identifying the steps in the turnover decision process and accounting for individual differences.

Mobley et al (1978) evaluated the 1977 Mobley model by surveying a sample of hospital employees. Measures of general and specific job satisfaction, attitudes and intentions about quitting, perceived alternate opportunities and biographical information were collected. Mobley et al reported that zero-order correlations between job satisfaction and turnover, age-tenure and turnover, satisfaction and thoughts of quitting, and intentions to quit and turnover mirrored research results described in previous literature [Arnold and Feldman, 1982]. Intention to quit showed the only significant relationship with actual separation.

Arnold and Feldman (1982) attempted to address some deficiencies noted by Mobley. They developed a model of the turnover process focusing on the following list of variables: demographic, tenure, cognitive/affective orientation, believed job security, intention to search for alternative positions, the believed existence of alternative positions and, finally, the intention to change positions. This study focused on intention as opposed to actual turnover. First, the relationship between intention to change positions and turnover was examined. Secondly, the interactions among demographic, tenure, cognitive/affective orientation, believed job security, intention to search for alternative positions, the believed existence of alternative positions and the intention to change positions, and their interaction with turnover were investigated. Lastly, the association between intentions to search and intentions to quit were considered. The results demonstrated a negative correlation between tenure and job satisfaction, organizational commitment, believed job security and intention to search for alternative jobs. Age, job satisfaction and organizational commitment variables influenced turnover through their effect on intention to change jobs. The turnover model was revised to be a function of three determinant variables: tenure, perceived job security and intention to search for alternatives.

In summary, the empirical literature on the prediction of civilian employee turnover has addressed several

methodological and interpretive issues associated with turnover research. Evidence of a strong relationship between employee dissatisfaction and withdrawal behavior (absenteeism and turnover) was acknowledged from research reviews as early as 1955. Failure to obtain independent measures and the use of amibguous measuring techniques were apparent weaknesses noted in the early studies which strongly suggested a need for future rigid research techniques toward accepting or rejecting a relationship of withdrawal behavior. Subsequent research conclusions lead to the positive and consistent relationship between a greater job satisfaction and the propensity to remain with the organization. These findings, although not particularly strong (correlations seldom exceeded .40), were substantiated by collecting attitudinal measurement data at one point in time and making a comparison with either present or future turnover rates. Research knowledge about turnover was further expanded when factors associated with turnover were found to be inconsistent with time.

In summarizing variables as turnover predictors for sample populations in research studies, personality differences have had a marginal effect. Results relative to an individual's interests are mixed with some apparent negative relationship shown between vocational interest and turnover. Likewise findings relative to intelligence and attitude vary from positive to zero. The type of work or job may temper

the intelligence-turnover relationship. When considering aptitude or ability-specific types may yield dissimilar results. Personal factors have been included as reliably consistent predictors of turnover by most researchers.

In reviewing biodemographics, there is an intercorrelation of age and tenure with turnover. Independently considered age and turnover are inversely related to turnover. Degrees of family responsibility are positively related to turnover. Family size resulted in mixed findings and results are diversified by whether the employee is the primary or secondary wage earner [Muchinsky and Tuttle, 1979]. The former appears to illustrate a positive relationship to turnover whereas the latter seems to be negative. Attitudinal predictors for turnover yield consistent results that job dissatisfaction is predictively associated with turnover. Work unit size and job repetitiveness are positively related to turnover while recognition and job autonomy appear negatively associated. Leadership factors that are people-oriented are negatively related to turnover whereas productivity factors indicate a positive relationship.

Muchinsky and Tuttle (1979) suggested five conclusions relative to previous turnover studies: (1) turnover is a predictable trait; (2) organizations can ease the reduction of turnover by supplying prospective employees with prior knowledge of expected tasks and responsibilities; (3) one theory to explain turnover is based upon an employee's prior expectations not being met on the job; (4) time is

required to thoroughly examine the realm of variables which impact on or predict turnover; and (5) measurement of behavioral intention appears to be of more predictive value than job satisfaction. Continued future research using broader-based samples is needed to examine past theoretical implications based upon selected employee populations. A summary of findings and relationships is shown in Table IV.

C. REVIEW OF MILITARY RESEARCH

A preponderance of research concerning voluntary separation of military personnel has focused upon reenlistment intentions and behavior, demographic and biographic predictors, or economic variables. These focuses have accounted for a small percentage of variance in the behaviors of interest [Hand et al, 1977]. Some of the studies reflect methodological shortcomings as noted earlier with civilian research.

Gray (1972) summarized three econometric studies, the Variable Reenlistment Bonus (VRB) Study, the Rotation Study, and the Time Series Study, conducted to analyze factors which influence Navy first term reenlistment behavior. In 1972, he classified enlistees as being draft-motivated or true volunteers. The basic economic theory stated reenlistment behavior to be a function of military compensation, civilian compensation and other non-pecuniary factors [Gray, 1972]. Changes over time with respect to the aforementioned factors were assumed independent of differences among ratings. All other things being equal, the VRB Study's results suggested

TABLE IV

Review of Civilian Research

Author	Criterion	Predictor	Findings on Relationship
Porter & Steers (1973)	Turnover	Pay Promotion	Negative influence when perceived as inequities
		Organizational Size	Not significant
		Supervisory Style	Negative
		Work Unit Sizes	Positive; insufficient
		Co-workers	Negative
		Task Repetitiveness	Positive
		Job Autonomy	Positive
		Role Clarity	Positive
		Age	Negative
		Tenure	Negative
		Job Requirements	Positive
		Vocational Interests	Positive
		Family Size	Insufficient
Porter et al (1974)	Turnover	Pay	Negative
		Promotion	Positive
		Co-workers	Negative
		Supervision	Negative
		Organizational Commitment	Positive

TABLE IV (CONTINUED)

Author	Criterion	Predictor	Findings on Relationship
Mobley et al (1978)	Intention To Quit	Intention to Search	.56 See Note 1
		Thinking of Quitting	.10
		Probability of Finding Acceptable Alternatives	.05
		Overall Satisfaction	-.10
		Age--Tenure	-.12 See Notes 2,3
Arnold and Feldman (1982)	Intention To Change	Demographic	.26 See Notes 4,5
		Demographics, Tenure	.27 See Notes 4,5
		Demographic, Tenure, Cognitive/ Affective	.44 See Notes, 4,5
		Demographic, Tenure, Cognitive/ Affective, Job Security	.45 See Notes 4,5
		Demographic, Tenure, Cognitive/ Affective, Job Security, Perceived Alternatives	.46 See Notes 4,5
	Turnover	Demographics	.26 See Note 4
		Demographics, Tenure	.36 See Note 4
		Demographics, Tenure, Cognitive/ Affective	.42 See Note 4
		Demographics, Tenure, Cognitive/ Affective, Job Security	.43 See Note 4

TABLE IV (CONTINUED)

Author	Criterion	Predictor	Findings on Relationship
		Demographics, Tenure, Cognitive/ Affective, Job Security, Perceived Alternatives	.43 See Note 4
		Demographics, Tenure, Cognitive/ Affective, Job Security, Perceived Alternatives, Intention to Search	.44 See Note 4
		Demographics, Tenure, Cognitive/ Affective, Job Security, Perceived Alternatives, Intention to Search, Intention to Change	.43 See Note 4

Notes:
1. $p < .05$
2. $p < .001$, $R = .75$
3. $N = 203$
4. $p < .001$
5. $N = 143$

that a 1% raise in pay would yield a 2% increase in reenlistment rates over the period individuals received the VRB pay. Two possible policy conclusions suggested from the Rotation Study were: (1) rotation does affect reenlistment; and (2) overseas homeporting would have an adverse effect on retention. The Time Series Study was an attempt to learn how to predict future reenlistments by examining monthly reenlistments for a just previously completed 10-year period. Three particular categories were isolated: (1) within 90 days of EAOS; (2) reenlistments more than three months early including the Selective Training and Retention Program (STAR); and (3) all bonus extensions. The STAR program was established to serve as a long-term reenlistment inducement for early career designations in critical ratings which guaranteed technical schools for the selected rating. The data reliability was affected in this third study because the reenlistment data counted positive decisions rather than amount of commitment, double short-term counting occurred with long term reenlistments, and policy exception programs had to be accounted for producing any universal changes. Unemployment and draftees were strongly related variables. Some measures of reenlistment rates were not controllable in time series analysis. The work was admitted as incomplete and still unknowing about the causes of shifts in manpower supply across time. A prediction attempt was made but considered not

reliable as regular pay increases and six-year obligors were not included.

Lockman, et al (1972) identified motivational factors in enlistment behavior from three past surveys concentrating on three specific decision points of naval service for the enlisted member (draft motivated and true volunteer): (1) accessions; (2) first termers; and (3) first through third termers. The second two categories were further subdivided into three occupational groups. The researchers were attempting to evaluate impacts of economic, psychological and personal factors as predictors of the reenlistment intent and decision [Lockman et al, 1972]. Prior economic studies were cited as centering on pay as a principle motivator of reenlistment. The data was explored using standard correlation, regression and factor analysis techniques for a multivariate examination. Intent to reenlist was shown to be about 32% with primary influences being the receipt of special pays and favorable co-workers' support for reenlisting. Secondary influences were disclosed as education level (lower education associated with higher reenlistment), personal contacts, and Navy advertising. First termers reenlistment interest was most associated with pro pay, favorable duty station, favorable living conditions, marital status and positive attitudes about wife/girlfriend. For the third group (first through third termers), reenlistment intent was high for men who considered the Navy as providing better

career opportunities comparable to civilian alternatives. The results varied by term. At the time of this study the economic VRB incentive had not gone into effect.

The major point emphasized by the researchers was that attitudinal, economic and biographical variables must be evaluated together in order to maximize the prediction of reenlistment intent [Lockman et al, 1972]. The dominant variables for prediction of reenlistment decision for men intending to reenlist were length of first term enlistment, broken home and liking the duty station [Lockman et al, 1972]. Results for non-intendees was negligible. Some variation in reenlistment decision remained unexplained by the independent variables employed in the survey and by small sample proportions.

In summary it was noted that positive intent and decision related to favorable attitude of wife, girlfriend, and/or family for all occupational groups considered, and special pay for two groups. The opposite held true for the majority of men who did not intend and did not reenlist. A broken home, dependent children and receiving sea pay were dominant predictors with negative intent but were shown as favorable decision predictors for at least one or two occupational groups.

Significant differences were apparent between the volunteer and draft motivated groups (7% of sample responded--the enlisted as they were about to be drafted) on their intent

to reenlist. The father's educational level (higher) showed a negative influence for reenlistment intent of the draft-motivated men. For volunteers, attitude of wife (girlfriend, etc.), broken home and number of dependent children were of secondary but equal importance. Volunteer accessions enlisted sooner after leaving school, were less highly educated, had fewer civilian job experiences, enlisted for a longer term, and more often tended to be sons of first generation military.

Goodstadt et al (1974), examined the relationship between organizational beliefs, affective dispositions and Navy reenlistment intention by sampling 537 men in three shortage ratings with lengths of service (LOS) in three ranges of 8-12 months, 22-26 months and 39-45 months. The results indicated that few organizational beliefs are significantly related to reenlistment intention. Three plausible areas for policy implications were suggested from the study's results. First, the perceived inability of enlisted personnel to do the kind of work that they are interested in, appeared to be a critical factor in the decision to reenlist. Suggested corrective policies included providing more complete information about occupational options and expanding counseling programs to accommodate occupational decision making needs for all paygrades. Secondly, perceived unfairness of proficiency pay and VRB were indicators of ineffectiveness to stimulating retention prospects. Suggested alternatives offered were to make the incentives contingent upon

established criteria of good work. Thirdly, the perceived inequity in extrinsic elements that are linked to satisfaction with the organization were considered as affecting retention. The extrinsic factors included such elements as maintaining a marriage, close living quarters, inequitable application of discipline, problems encountered to change rates, pay non-comparability, unnecessary changes to plans and schedules, variations in commanding officers' execution of policies, amount of sea duty, and lack of personal assignment consideration. Suggestions included providing greater psycho-social supports for spouses and families.

Hand et al (1977) proposed in a review of military research that while the variance for personal and demographic factors rarely rose above 10%, education continued to be applied as a service-wide attrition predictor. Occupational groupings, organizational commitment, organizational size, peer group relations, and supervisory style were not reviewed in any studies. Literature showed very minor support for either pay, job satisfaction, organizational practices or expectations as having any significant variance levels relative to withdrawal behavior. Age was shown as moderately significant to reenlistment. Noteworthy variables linked to increasing the probabilities of staying in the service were a longer length of service during the first term, occupation, geographic origin (i.e., the west reflected higher probabilities) and economic background.

Hand et al (1977) postulated that those sailors who remain in the service reflect a unique set of personal characteristics compared to those associated with the attritors. They indicated that demographic and biographical data alone are inadequate to make an analysis without considering situational and organizational constraints. Performance before entry compared to performance in service offered some contribution to the predicting equation but only by a small variance. In general, variable analyses were reported as weak, inconsistent or inconclusive. The desire for and availability of alternative civilian positions was the single consistently positive relationship to reenlistment while relevance to turnover remained small.

O'Neill and Mirra (1979) identified variables related to reenlistment of intention for Navy cryptologic technicians (maintenance). Twenty seven variables were correlated to the intention to reenlist with the variance (r) of .506 for attitude toward Navy career while the remaining values hovered in the range between .249 and .481. At best, inconclusive speculations may be drawn relative to important variables which should be investigated for their impact on any decision about intention not to reenlist.

Hom et al (1979) compared three approaches to the prediction of turnover using Fisbein's (1973) behavioral intention model, job satisfaction and Porter's (1973) organizational commitment model. The Fishbein model assumes a person's behavior is a function of the intention to perform that

behavior determined by an attitude component and a social component (subjective norm). The three models were applied to a survey of 484 National Guard members within 6 months of EAOS. These and other results of military research are shown in Table V. The intention to reenlist was highly related to the reenlistment act. Consistent with the Fishbein and Azen (1977) theory, attitude toward reenlistment more strongly predicted reenlistment criteria than did measures of job and organizational satisfaction. Organizational attitude was not substantiated as a superior turnover predictor over attitudes about various job aspects.

In summary, research results about military enlistees can be concluded to reflect that reenlistment and/or the withdrawal process is multivariate in nature. There is a need to broaden the possible spectrum of predictors to increase the amount of variance accounted for. Important classes of predictors which Hand et al considered as previous research omissions were: first, data beyond the military's control such as unemployment rates and civilian pay comparability; and secondly, service wide separation policies. These omissions most likely represent major sources for future exploration.

TABLE V

Review of Military Research

Author	Criteria	Predictor	Findings or Relationship
Lockman et al (1979)	Reenlistment Intent	Pay	Positive--principal motivator
		Location	Positive
		Marital Status	Positive
		Attitudes about wife/ girlfriend	Positive
		Dependency	Negative
		Father's Educ. Level	Negative
Goodstadt et al (1974)	Reenlistment Intent	Organizational Beliefs	Insignificant--See Note 1
		Occupational Interest	Negative
		Pro Pay	Negative--if perceived as an inequity
		Extrinsic Elements	Negative--if Note 2 perceived as an inequity
Hand et al (1977)	Reenlistment	LOS	Positive as LOS increased
		Occupation	Positive for non-technical mos.
		Pay	Not reviewed
		Job Satisfaction	Not Reviewed
		Organizational Practice	Not Reviewed
		Age	Positive--moderately significant

TABLE V (CONTINUED)

Author	Criteria	Predictor	Findings or Relationship
O'Neill and Mirra (1979)	Reenlistment	27 Variables	Inconclusive
Hom et al (1979)	Intention to Reenlist (See Note 3)	Fishbein Model	$R = .65, p < .05$
		Job Satisfaction	$R = .57, p < .05$
		Organizational Commitment	$r = .68, p < .05$
	Reenlistment (See Note 4)	Fishbein Model	$R = .81, p < .05$
		Job Satisfaction	$R = .49, p < .05$
		Organizational Commitment	$r = .58, p < .05$

Notes: 1. N = 537 .

2. Extrinsic elements included living quarters, inequitable discipline, changing rates, schedules--hours, sea duty, lack of assignment considerations.

3. N = 373

4. N = 228

III. METHODOLOGY

A. DATA BASE

The data source used in this study was the 1978 Department of Defense Survey of Officers and Enlisted Personnel [Doering et al, 1981]. This survey was jointly designed and administered by DOD and the Rand Corporation with an administering date of 1 February 1979. The economic elements in the questionnaires applied to 1978 and the data was collected during the first six months of calendar year 1979. One particular aim of this research project was to provide information about the military life cycle encompassing career decisions and responses to military policies of the affected service individuals and their families. A worldwide active duty population of more than 54,000 men and women of the Army, Navy, Marine Corps, and Air Force was surveyed. Survey results were expected to provide researchers with a data base to empirically test hypotheses about personnel attitudes and to provide management with a foundation for personnel-related policy decisions.

Four questionnaires were used in the active duty 1978 DOD Survey with two each being given to officer and enlisted participants. Prospective respondents were selected by name from service records. Enlisted or officers participating in the survey answered only one questionnaire. Nine sample cells were constructed for each service branch for both

enlisted forms. Participants were stratified by years of service (YOS). Personnel with fewer than 8 YOS were further stratified by years to end of active obligated service (EAOS) as seen in Table VI. A supplemental sampling of women and blacks provided for two additional respective cell samples, 8 and 9.

Survey Forms 1 and 2 were administered to enlisted personnel. Form 1 concentrated primarily upon economic issues as labor force factors, family income resources, housing, military compensation and career options. Form 2 predominantly focused upon unique personnel actions as rotation and promotion, quality of life issues, family background, assignment history, and attitudes about current personnel policy issues. Both surveys dealt with common individual factors as personal background, marital and dependency status, military background and indices of satisfaction. Form 1 for U.S. Navy enlisted sailors was the data base used for this thesis research. Hereafter all references to the Form 1 of the survey will be referred to as the 1978 DOD Enlisted Survey. The response rate for Form 1 can be seen in Table VII.

B. MODEL OF TURNOVER INTENTIONS

In creating a model for predicting actual turnover behavior, Quinn et al (1973) highlighted three simple key determinants: (1) the employer's disposition to retain the employee; (2) the employee's environmental or situational variables, and (3) the disposition to turnover. An accurate

TABLE VI

Enlisted Stratification Summary

Sample Cell (Cell #)	Years of Service (YOS)	Time to End of Active Obligated Service (EAOS)
1	0-4	≤ 1 year
2	0-4	> 1 year
3	5-8	≤ 1 year
4	5-8	> 1 year
5	9-12	
6	13-16	
7	17+	
8	Additional females	
9	Additional blacks	

Source: 1978 DOD Survey of Officers and Enlisted Personnel: User's Manual, Rand, 1981, p. 6.

TABLE VII

Navy Response Rate for Form 1

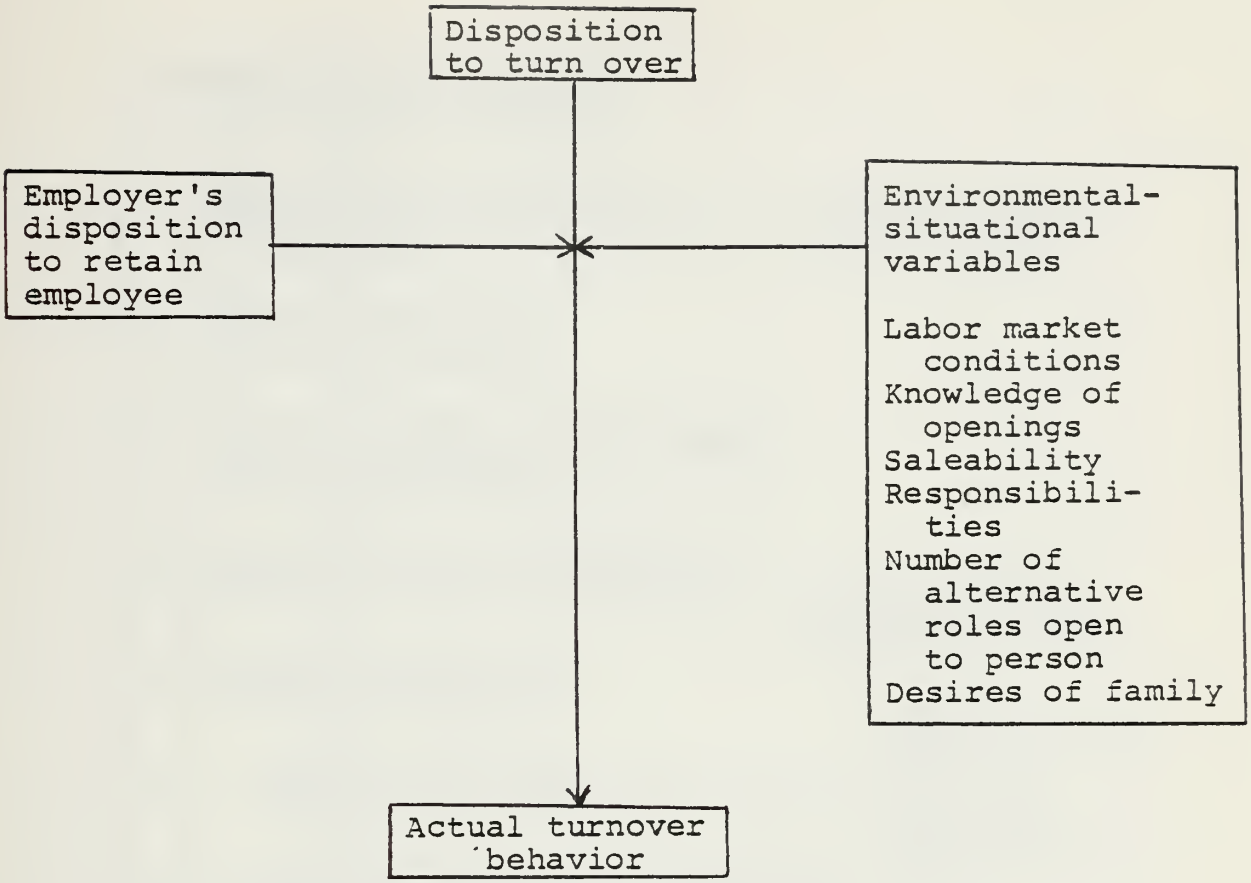
Fielded	10,584	Required	5,190
Returned	6,508	Return rate as % of	
Response Rate	61.5%	required	125.4%

Source: 1978 DOD Survey of Officers and Enlisted Personnel: User's Manual, Rand, 1981, p. 9-10.

prediction of real turnover behavior could be made only according to Quinn, et al if these three key predictors as depicted in Figure 2 were taken into account. The first and second determinants were also classified as influential moderators. In particular, they considered it possible for situational or environmental variables to be able to override, cancel or reverse an individual's turnover intentions. The environmental and situational variable candidates included such items as labor market conditions, knowledge of job vacancies, skill salability, personal and job responsibilities, and other perceived alternative activities (career and non-career).

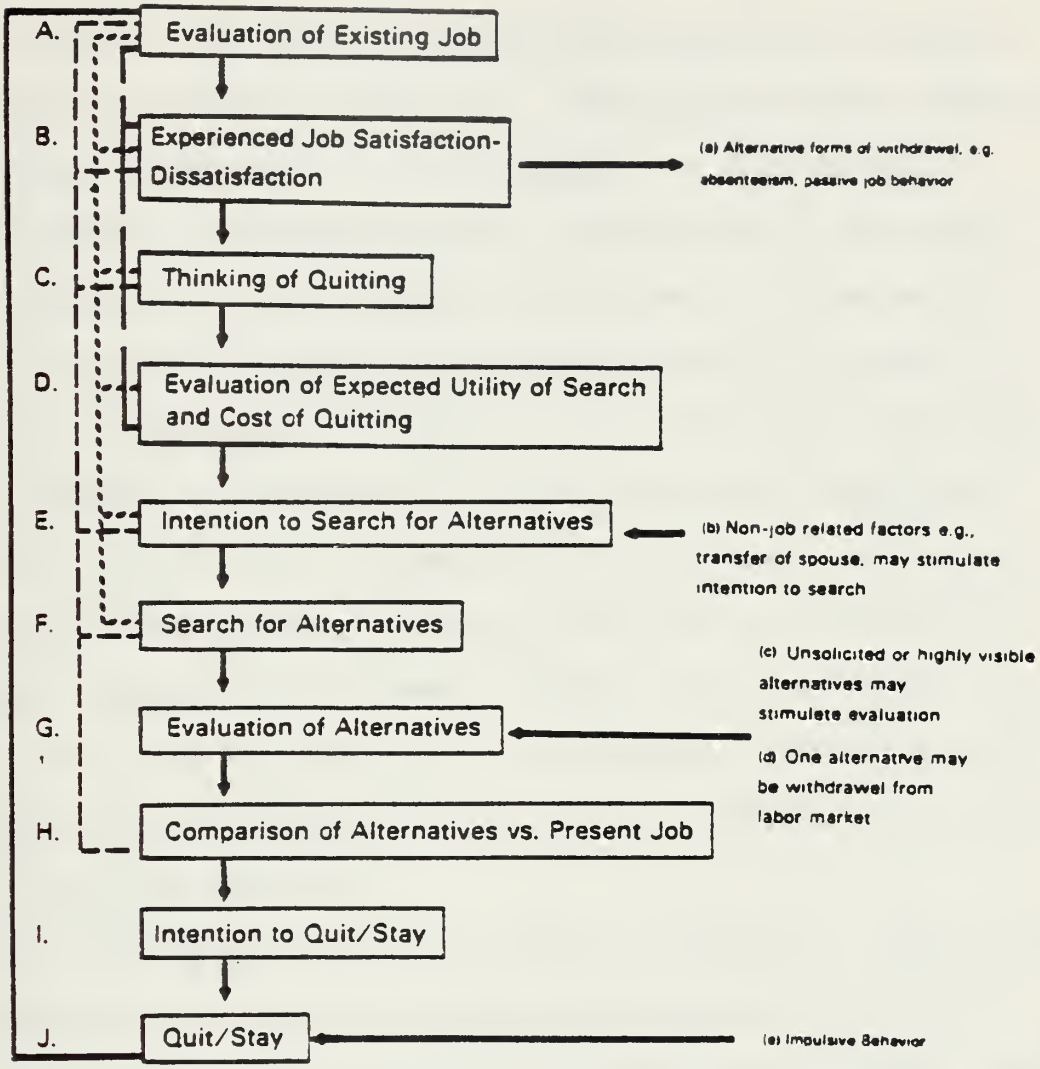
Mobley (1977) characterized an employee turnover model akin to a decision process involving eight (both job and non-job related) factors which served as antecedents to the intention to quit/stay. The final decision resulted in the actual event--to quit or stay. The eight factors listed were job evaluation, job satisfaction/dissatisfaction, thinking about quitting, expected utility of search--cost of quitting, and intention to search, search for and evaluation of alternatives and finally, the comparison of alternatives with present job. The relationship among the factors is shown in Figure 3.

Using the Mobley (1977) model, Mobley et al (1978) developed a simplified representation, consolidated some previous linkages and prefaced the model with age/tenure. These two variables were thought to affect turnover through satisfaction and favorable alternative probabilities.



Source: Quinn et al (1973), Figure II-1: The Major Determinants of Actual Turnover Behavior, P. 356.

Figure 2. Quinn et al Model (1973)



Source: Mobley (1977), p.238, Figure 1. The Employee Turnover Decision Process.

Figure 3. Mobley Model (1977)

Steers and Mowday (1981) developed a cognitive model of voluntary employee turnover which was built upon past research works. The model contained the following thirteen influences as shown in Figure 4. The dynamic model summarized the process leading up to the decision to stay or quit. Three intervening influences are illustrated in the model's first link of job expectations and values. In the model, intent to leave and desire have been combined in order to focus on the previous processes up to behavioral intentions. Unique aspects illustrated in this particular figure are: the role of available information; the location and influence of job performance; varying attitudes as related to turnover; emphasis of non-work factors; and individual's search for alternatives prior to deciding to leave; and the inclusion of an accommodation process by persons who stay or who are left behind.

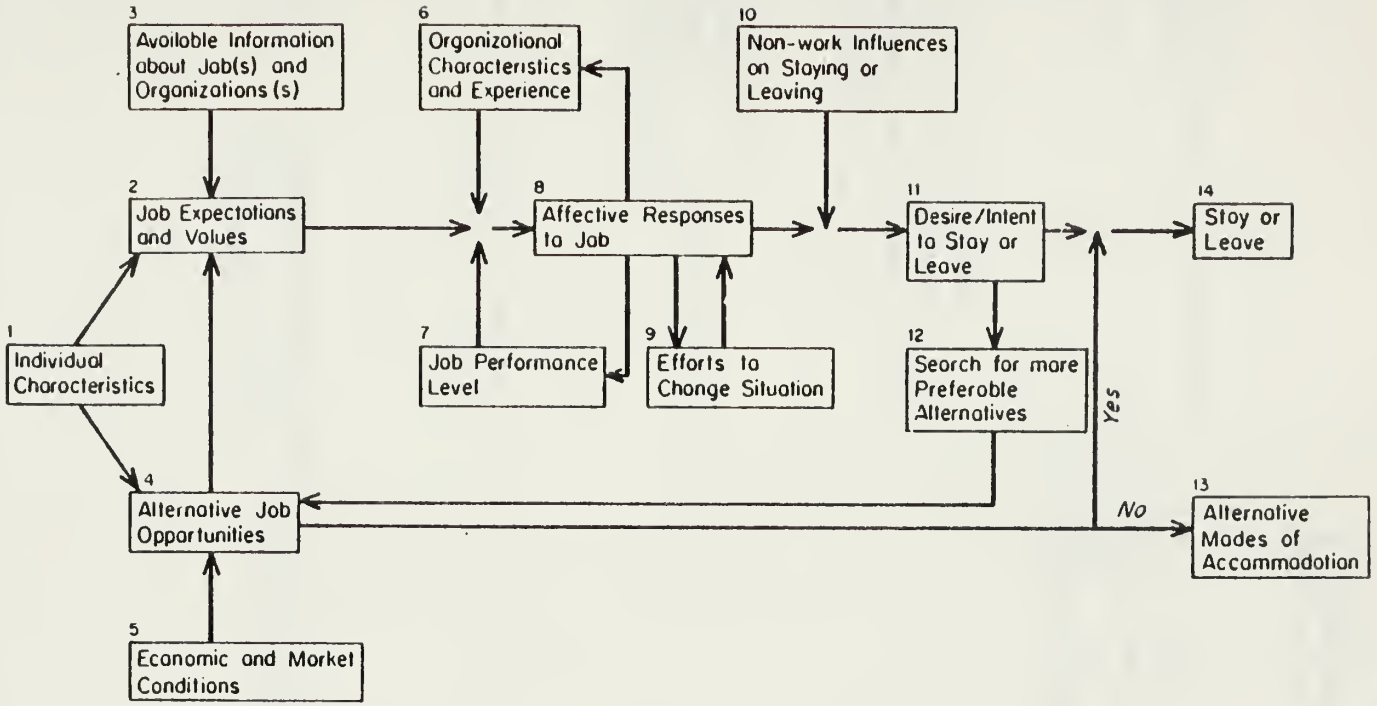
The model hypothesized in Figure 5 reflects a combination of interrelationships of dominant categories of variables related to turnover as proposed by Arnold and Feldman (1982) and as adapted for data availability from the 1978 DOD Enlisted Survey. Key categories of determinants focused on were:

demographic,

tenure,

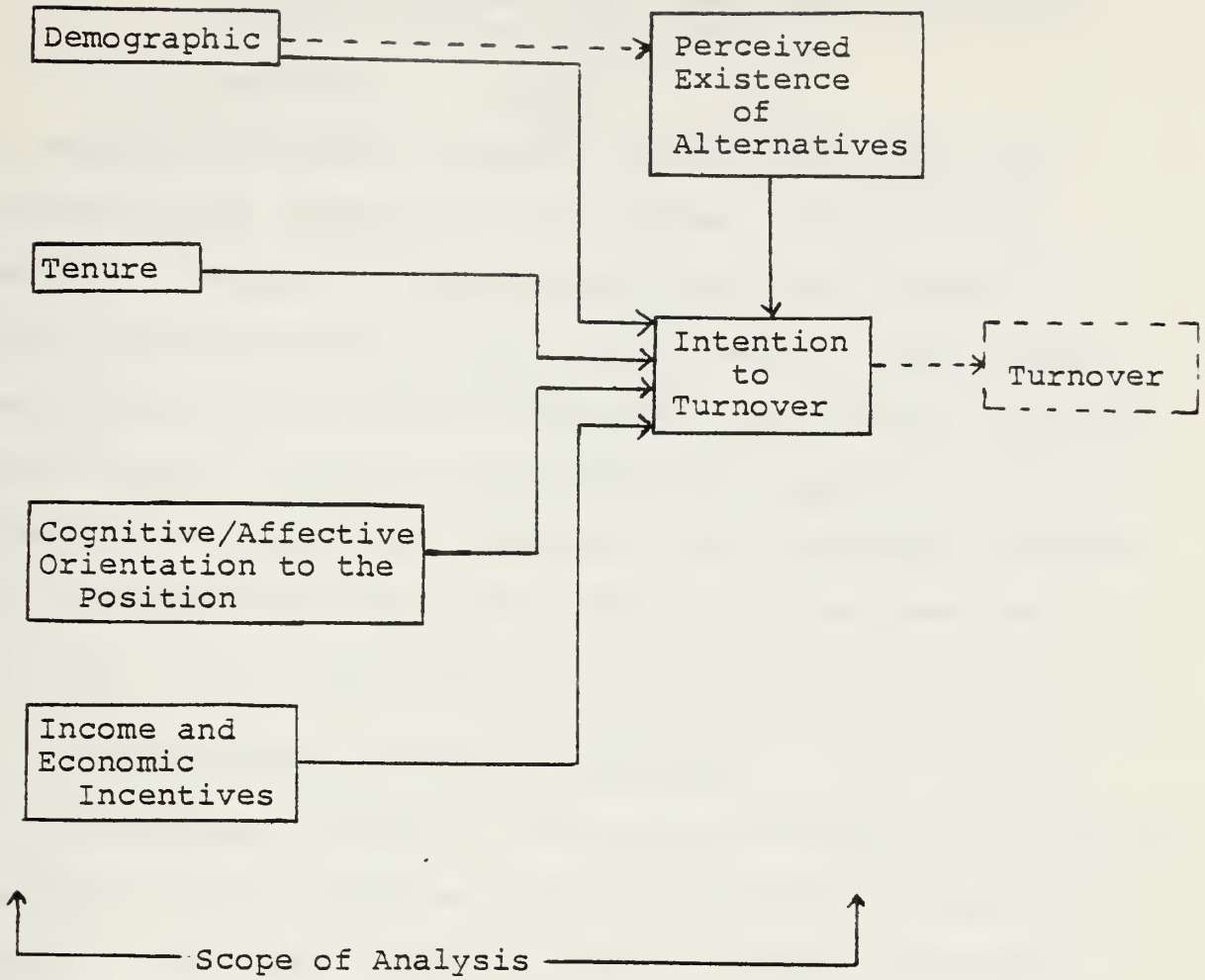
cognitive/affective orientation relative to the position,

income and economic incentives,



Source: Steers and Mowday (1981), Exhibit 2, p. 242: A Model of Voluntary Employee Turnover

Figure 4. Steers and Mowday Model (1981)



Source: Adapted from Arnold and Feldman (1982) model, Figure 1, p. 351: Working Model of the Turnover Process.

Figure 5. A Model of Turnover Intentions

perceived existence and comparison of alternatives (civilian jobs), and

intention to turnover.

The schematic diagram represents the variables which are hypothesized as determinants of turnover. Intention to reenlist (turnover) is the dependent variable. Mobley (1977) suggested that the next logical step of intention to leave was the actual step of quitting. The 1978 DOD Enlisted Survey did not follow up respondents with regard to actual separation or retention. Therefore, the relationship between the explanatory variables and intention to leave was the principle focus of this thesis.

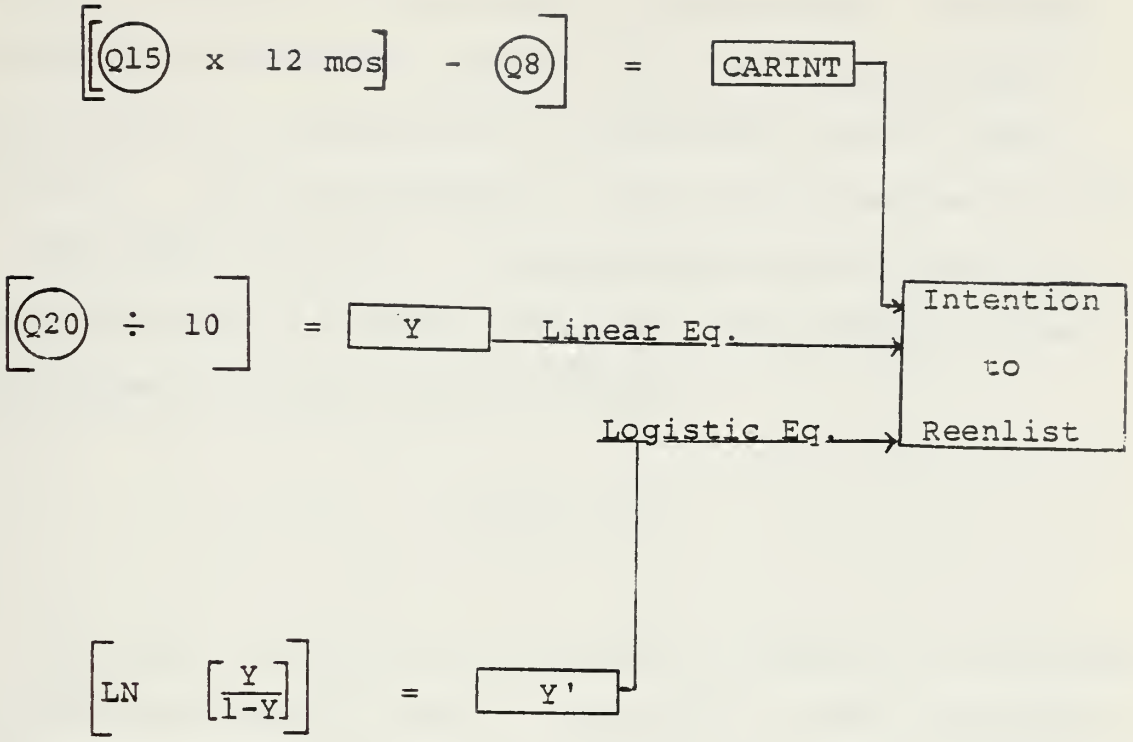
C. IDENTIFICATION OF DEPENDENT VARIABLE

The dependent variable, intention to reenlist, was selected from among three candidate criterion variables as depicted in Figure 6. The first candidate, CARINT (career intention) was constructed by the following computation:

CARINT = [Intended months of service - current months of service]

CARINT, reflected the remaining number of months the respondent intended to voluntarily serve regardless of current enlistment contract or obligated service.

Likelihood to reenlist with no reenlistment bonus, was a second candidate. The responses available to the individuals who were surveyed were coded on a Likert scale from (0) to



Q15 - Years Expect to Have Served When Leave the Service (continuous measure)

Q8 - Current LOS (in months) (continuous from 25 to 72)

Q20 - Likelihood to Reenlist Without Bonus (measured on 9 point scale)

Y - Predictor for Linear Equation

Y' - Predictor for Logistic Equation

Figure 6. Criterion Candidates and Measures

(10). Uncertainty and near-term retirement were assigned separate values but disregarded in the analysis. In order to determine probability weight, the 0 to 10 values were consolidated and converted to a nine point decimal scale (.1 to .9). Q20 was recoded to Y for the regression analysis.

The third candidate, Y' transformed the likelihood of reenlisting into a logistic equation. The computation was constructed in linear form as follows:

$$Y' = Ln[Y/(1-Y)]$$

Behavioral intentions are related to turnover as reported by Steers and Mowday (1981). Intention to leave influences actual turnover by two methods. First, intent may lead directly to actual separation (turnover). An enlistee may decide to leave the service even though alternate terms of employment have not been sought or may not be readily available. Intent to leave may indirectly influence turnover by prompting an individual to search for alternative jobs. As the individual's search behavior becomes more sensitive to the job market, a greater number of opportunities are exposed, thus increasing the possibilities of voluntary separation. It is suggested that the intention to reenlist or not reenlist is also affected by other explanatory variables and characteristics which will be discussed in the next section.

D. CANDIDATE EXPLANATORY VARIABLES

Each of the key determinants and associated component variables are discussed below. A listing of these independent variables, measures and corresponding survey questions is provided in Table VIII.

1. Demographic

The individual biographical and demographic variables used were branch of service, gender, marital status at service entry and current marital status, dependency status, race, education level. A dummy variable, ENTAGE--Entry Age, was constructed to select given ages at service entry (Q42) in combination with current age (Q41). Branch of service was controlled for Navy respondents only. Quinn et al (1973) and Muchinsky and Tutle (1979) reported demographic variables as the best panel of predictors.

Mobley et al (1978) found that age is negatively related to turnover. Hand et al (1977) cited one study where age accounted for 35% of the predictor variance to actual reenlistment. Three additional studies reviewed by Hand et al (1973) found age to produce conflicting results (positive, negative, negligible) on turnover. Two questions were used to focus on age--age at service entry and current age. The normal entry age centered about 17-19. Seventeen to twenty was considered an average-aged entrant, and twenty one to twenty four--the older entrant.

No military specific research and few civilian research studies were found which addressed gender as an

independent variable, due primarily to small sample populations. Quinn et al (1973) using sex as a demographic measure for a survey of civilian workers, found that the percentage of turnover among 217 men was 31.3% and 32.9% for 76 women. Arnold and Feldman (1982) reported two studies with conflicting results relative to gender and turnover. One study revealed females with a higher turnover rate, yet the second study revealed no difference in turnover rates by gender.

Marital status at entry and current marital status were included along with dependency to address family status. Past and present marital status was explored also to further identify the change in status as occurring over time for the sample population. The two questions about marital status were recoded to provide dicotomous values. Married, divorced and separated represented one group while single and widowed represented a second group. Quin et al (1973) reported a 50% turnover rate for 68 single persons versus 26% for 227 married persons. Hand et al (1977) reported one study's findings on reenlistment intentions among a sample of 3,115 Navy shipboard enlistees, that the typical enlistee was married, had a larger family, and had lower social economic family background. Arnold and Feldman (1982) noted that marital status and number of dependents were indicators of family responsibilities. Fewer family responsibilities were usually associated with decreased turnover. Two additional military studies cited by Hand et al (1977), clearly reported that

increased dependency status was positively related to actual reenlistment. The question for dependency was recoded to merely reflect dependency status (excluding respondent and spouse)--some or none. The specific quantity was not considered pertinent to the analysis.

Race was used as a predictor for actual reenlistment in six research reviews discussed by Hand et al (1977). Two of the six studies [Nelson, 1970; Enns, 1975], found that nonwhites were more likely to reenlist. One possible explanation offered, attributes higher reenlistment rates for blacks due to the potential civilian earning ability. Four studies found conflicting results on race and turnover, ranging from race being a significant contributor to turnover to race having little impact on turnover.

Education level was selected as the final demographic variable and recoded as a dummy variable for completion of high school. Hand et al (1977) cited eleven studies using education as one predicting variable for both recruits and more senior enlistees. Except for two of the eleven studies, which showed education as having little impact, the remaining nine studies were in general agreement that education was negatively related to the criterion, actual reenlistment. Education was found as a significant contributor in model equations. Sample populations ranged from 797 Navy enlistees to 700,000 enlisted Marines. High school graduates were characterized as "more effective" marines. Individuals who

were not recommended for reenlistment had less education than those who were recommended but did not reenlist (R^2 = .05).

2. Tenure

Tenure has consistently been found to be negatively related to turnover by Steers (1977) and Arnold and Feldman (1982). Three candidate variables were selected from the questionnaire pertaining to tenure: length of service, term of enlistment, and time remaining to EAOS. Length of service was semi-controlled to segregate first term Navy enlistees who were 4 and 6 year obligors. In order to account for obligors as a variable candidate, the dummy variable ACDULOS was constructed as follows:

4 yr	--	(25 mos $\leq$ LOS $\leq$ 48 mos)	ACDULOS = 0
6 yr	--	(48 mos < LOS $\leq$ 72 mos)	ACDULOS = 1

Individuals who indicated a response to leave the service due to not being recommended for reenlistment or who planned to retire at EAOS were omitted from the sample population.

Two studies reviewed by Hand et al (1977) found that interest in reenlistment declined with increased months of service and that the longer term of first enlistment (up to 4 years) resulted in greater reenlistment probabilities. Increased tenure appeared directly related to the desire to remain with an organization. Twelve months remaining to EAOS was particularly chosen as representing the time period

when attitudes about separation are expected to be strong because of the proximity to completing an obligated contract [Porter and Steers, 1973].

3. Cognitive/Affective Orientation

This category was further subdivided into three segments by nature of questions selected--expectations, orientation to the military and job characteristics. The question pertinent to expectations asked for the respondent to rate military life according to expectations. The question representing orientation to the military was depicted by satisfaction with military life. Job characteristics were addressed by two survey questions: (1) assignment-ship (as a general location), and (2) attitude about current location.

To a service member, the military life and the military organization often overlap and are considered one entity. Therefore attitudes about military expectations and satisfactions similarly represent attitudes about the service employer. Variables from which organizational attitudes are derived were segregated in studies reviewed by Hand et al (1977) to extrinsic and intrinsic climatic variables. Intrinsic variables such as achievement, growth, responsibilities, and recognition were positive perceptions for prospective enlistees. Extrinsic factors such as organizational policies, administration, travel, training, co-workers and supervisors served as negative reinforcement for members not intending to reenlist. Added climatic

variables which might serve as negative influences on satisfaction and expectations were loss of freedom, leaders, disorganization, inequitable treatment, over-working conditions, interference with family and social life, family separation time and discrimination. Job satisfaction and organization commitment have consistently been found to be negatively related to turnover [Arnold and Feldman, 1982]. These two concepts are also considered as attitudinal elements of satisfaction and/or expectations about the organization, and therefore are also relevant to this category.

4. Income and Economic Incentives

This category encompassed those survey questions associated with pecuniary variables of pay, special pay and allowances, gross spouse earnings, total family income, total outstanding debts, total liquid assets, and a comparison of financial situation with three years past. Dummy variables were constructed to compute gross annual military pay (MILPAY) and gross relative military pay (RELMPAY). Base pay and allowances (basic quarters, and basic subsistence, were added and multiplied by twelve months to arrive at a gross annual military pay figure. Annual relative pay was computed by dividing the members total annual military pays (MILPAY) by total expected civilian earnings.

Of the studies reviewed by Hand et al (1977) pay did not seem to be a cause for reenlistment but it did have an impact on the decision not to reenlist. The enlistee who

remains in the military foregoes pecuniary benefits associated with the highest ranking available civilian job opportunity. Economic parameters are included in an individual's decision-making process about behavioral intention. Pecuniary inducements in current and alternative employments change with respect to each other and the individual's preferences change through time [Baysinger and Mobley, 1982].

An enlistee who views his financial situation as restricted by lack of seniority, lack of special pays, and by being in a junior paygrade must evaluate the cost of quitting and job security along with personal skill salability. Pecuniary variables become significant contributors when considered with spousal earnings, dependency status and a technical skill.

5. Perceived Existence of Alternatives

This category comprised three subset categories: (1) civilian job opportunities, (2) perceptions of alternatives, and (3) perceptions of civilian job factors in comparison to the military job. Within the first subcategory, variables included civilian job offers within the past twelve months. The second subcategory included four variables: likelihood of finidng a good civilian job if left service now, whether one would use military skills in a civilian job (Q100) and if the family would be better off if the respondent was in a civilian job (Q104D).

The third subcategory contained thirteen comparisons whereby the enlistee rated civilian versus military job

related elements. These compariable elements encompassed: immediate supervisors, having a say, retirement benefits, medical benefits, interesting work, wages and salaries, promotion chances, training opportunities, co-workers, work schedule-hours, job security, equipment and job location.

Research suggests that less satisfied people are more likely to evaluate job alternatives and are more sensitive to job market and economic conditions. Individual characteristics may also influence alternative job opportunities such as age, sex and skill. Market and economic conditions influence the availability of job opportunities. If an enlistee believes he has few viable job alternatives, the service member would be less likely to leave the military and might instead engage in alternative forms of withdrawal behavior. If an enlistee wishes to leave and is able to do so because of having completed contractual service, the probability of turnover is increased providing the individual did not intend to reenlist. As mentioned previously, job attitudes, attitudes about perceived opportunities and the opportunities themselves vary with time. Positive job attitudes decrease the likelihood of exploring job opportunities and tend to reduce the individual's sensitivity to the possibilities available [Hand et al, 1977].

TABLE VIII

Candidate Explanatory Variables

Category	Questions--Descriptions	Measures
I. Demographic	(Q3) Service Branch	2 = Navy (See Note 1)
	(Q40) Gender	0 = Female; 1 = Male
	ENTAGE (Entry Age)	0 = (See Note 2) 1 = (See Note 2)
	(Q45) Entry Marital Status	0 = widow-single; 1 = married-divorced-separated
	(Q46) Current Marital Status	0 = widow-single; 1 = married-divorced-separated
	(Q54) Dependency Status	0 = None; 1 = Some
	(Q53) Education Level	0 = No High School Diploma 1 = High School Diploma
	(Q44) Race	0 = Black; 1 = White
II. Tenure	(Q8) Length of Service (LOS)	(continuous) (See Notes 1,5)
	(Q9) Term of Enlistment	1 = First (See Note 1)
	ACDULOS--Active Duty LOS	0 = 25 $\leq$ LOS $\leq$ 48 (See Notes 1,3,4) 1 = 48 < LOS $\leq$ 72 (See Notes 1,3,4)

Notes: 1 - Variable was controlled for measure indicated.

2 - ENTAGE = 0 if ((Q42 = 17 Q41 = 19-23) or
(Q42 = 18 Q41 = 20-24) or
(Q42 = 19 Q41 = 21-25) or
(Q42 = 20 Q41 = 22-26)) or
ENTAGE = 1 if ((Q42 = 21 Q41 = 23-27) or
(Q42 = 22 Q41 = 24-28) or
(Q42 = 23 Q41 = 25-29) or
(Q42 = 24 Q41 = 26-30))
Q41 = Current Age, Q42 = Entry Age

3 - LOS Controller (25 $\leq$ LOS $\leq$ 72 mos.)

4 - ACDULOS = 0 (implies 4 yr obligor)
ACDULOS = 1 (implies 6 yr obligor)

5 - Respondents were selected out if they answered 1 = Yes

TABLE VIII (Continued)

Category	Questions	Descriptions	Measures
II. Tenure (Cont'd)	(Q31B)	Plan To Retire End Of Current Term	0 = Unmarked (See Note 5)
	(Q31C)	Would Leave Service Not Elig Reenlist	0 = Unmarked (See Note 5)
III. Cognitive-Affective Orientation			
a. Expectations-Orientation	(Q104A)	Military Life as Expected	1 = Strongly Agree 2 = Agree 3 = Neither Agree Nor Disagree 4 = Disagree 5 = Strongly Disagree
b. Orientation To The Military	(Q105)	Satisfaction With Military Life	1 = Very Dissatisfied 2 3 4 5 6 7 = Very Satisfied
c. Job Characteristics	(Q5)	Assignment Location-Ship	0 = No; 1 = Yes
	(Q7)	Attitude About Location	1 = Very Dissatisfied 2 3 4 5 6 7 = Very Satisfied
IV. Income and Economic Incentives			
	MILPAY	Military Pay	(Continuous $) (See Note 6)
	(Q73)	Receive Special Pays-Allowances	0 = None; 1 = Some

Notes: 6 - MILPAY = [[Q69 + Q70 + Q71] x 12]

Q69 = Base Pay (continuous $)
Q70 = Basic Allowance--Quarters (continuous $)
Q71 = Basic Allowance--Subsistence (continuous $)

TABLE VIII (Continued)

Category	Questions--Descriptions		Measures
IV. Income and Economic Incentives (Cont'd)	(Q90)	Spouse's Total Earnings 1978	(Continuous $)
	(Q93)	Total Family Income	(Continuous $)
	(Q94)	Total Outstanding Debts	(Continuous $)
	(Q95)	Total Liquid Assets	(Continuous $)
	(Q96)	Financial Situation Now Compared With 3 Yr Ago	1 = Lot Better Now 2 = Somewhat Better Now 3 = About Same 4 = Somewhat Worse Now 5 = Lot Worse Now
	RELMPAY -	Relative Military Pay	(Continuous $) (See Note 7)
V. Perceived Existence of Alternatives and Comparisons			
a. Civilian Job Opportunities	(Q97)	CIV Job Offers Past 12 Months	0 = No 1 = Yes
b. Perceptions of Alternatives	(Q98)	If Leave Service Now Would Find Good Civilian Job	0 = No Chance 1 = Very Slight Possibility 2 = Slight Possibility 3 = Some Possibility 4 = Fair Possibility 5 = Fairly Good Possibility 6 = Good Possibility 7 = Probable 8 = Very Probable 9 = Almost Sure 10 = Certain
	(Q100)	Would Use MIL Skills in Civilian Job	Categories 0-10 same as for (Q98) above.

Notes: 7 - RELMPAY = [MILPAY ÷ Q99]

Q99 = Expected Civilian Earnings--Yr. (Continuous $)

TABLE VIII (Continued)

Category	Questions—Descriptions		Measures
V. (Continued)			
b. Cont'd	(Q104D)	Family Better Off With Me in Civ Job	1 = Strongly Agree 2 = Agree 3 = Neither Agree Nor Disagree 4 = Disagree 5 = Strongly Disagree
c. Comparison of Civilian vs. Military Job	(Q102A)	Immediate Supervisors	1 = Civilian Lot Better 2 = Civilian Slightly Better 3 = About Same 4 = Civilian Slightly Worse 5 = Civilian Lot Worse
	(Q102B)	Having a Say	1-5 pt. Scale (see Q102A)
	(Q102C)	Retirement Benefits	1-5 pt. Scale (see Q102A)
	(Q102D)	Medical Benefits	1-5 pt. Scale (see Q102A)
	(Q102E)	Interesting Work	1-5 pt. Scale (see Q102A)
	(Q102F)	Wages and Salaries	1-5 pt. Scale (see Q102A)
	(Q102G)	Promotion Chances	1-5 pt. Scale (see Q102A)
	(Q102H)	Training Opportunities	1-5 pt. Scale (see Q102A)
	(Q102I)	Co-workers	1-5 pt. Scale (see Q102A)
	(Q102J)	Work Schedule--Hours	1-5 pt. Scale (see Q102A)
	(Q102K)	Job Security	1-5 pt. Scale (see Q102A)
	(Q102L)	Job Equipment	1-5 pt. Scale (see Q102A)
	(Q102M)	Job Location	1-5 pt. Scale (see Q102A)

IV. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A. OVERVIEW

This chapter presents the results of a regression analysis of reenlistment intentions using the set of candidate variables discussed in the previous chapter. The Statistical Package for the Social Sciences (SPSS) was used to conduct the multiple classification analyses (MCA) using both linear regression and new regression analyses [Nie et al, 1975; Nie and Hull, 1981]. The data set of total respondents was reduced to Navy first termers within one year of EAOS, between 25 and 73 months of service (LOS) and between 17 and 24 years of age at entry.

The minimum condition of 24 LOS months was to eliminate reservists who serve their first two years on active duty. Gender and race were not used to partition cases due to small sample sizes. When all parameters were applied and missing cases were selected out, the final data base sample contained 479 cases for analysis.

The logistic function of reenlistment intentions was used as the criterion variable. This variable provided better explanatory value than career intention (CARINT) and has a long history of use in regression analysis of reenlistment intentions [Enns, 1977; Hiller, 1982]. The model form was

$$Y' = 1/[1 + e^{-(b_0+b_1x_1 + \ldots + b_Nx_N)}].$$

The independent explanatory variables are represented by $x_1, x_2, \ldots, x_N$. These predictors are expected to capture the effect of

major influences on reenlistment intentions. The quantitative relationship of each variable, $x_1, x_2, \ldots, x_N$, with the likelihood of reenlistment is assessed in the equation by its respective coefficient $b_1, b_2, \ldots, b_N$. The equivalent linear form of the logistic equation can be expressed as follows:

$$Y' = \text{Ln}[Y/(1-Y)] = b_0 + b_1x_1 + b_2x_2 + \ldots + b_Nx_N$$

The means and standard deviations for the candidate explanatory variables are shown in Table IX. The mean reenlistment probability was 0.17. 84.6% of the respondents expressed no change--very slight possibility of reenlisting while 4% reported certainty--almost certain possibility of reenlisting. Frequency distributions and condescriptive statistics for candidate variables and other biodemographic variables can be found in Appendix A.

The correlation results between all the explanatory variables and reenlistment intention (Y) are summarized in Table X. The variables having the highest zero order correlation with reenlistment intention were family better off with respondent in a civilian job (.44) and satisfaction with military life (.39). All remaining variables had absolute values of correlation coefficients of less than .21. The highest correlation reported for a demographic variable was gender (-.15). Pecuniary variables, in general, had low correlations overall with the highest being .09 for MILPAY and RELPAY.

B. CATEGORICAL ANALYSIS OF DETERMINANTS

Each of the five major categories were separately block entered into single regression equations with the logistic

TABLE IX

Mean and Standard Deviations of Candidate Variables

Variable List	Mean	Standard Deviation
I. Demographic		
1. ENTAGE	0.12	0.32
2. Gender	0.91	0.29
3. Entry Marital Status	0.08	0.26
4. Current Marital Status	0.42	0.49
5. Dependency	0.23	0.42
6. Race	0.91	0.29
7. High School Diploma	0.88	0.32
II. Tenure		
8. ACDULOS	0.36	0.48
III. Cognitive/Affective Orientation		
9. Military Life as Expected	3.16	1.10
10. Satisfaction with Military Life	2.47	1.43
11. Assignment--Ship	0.62	0.49
12. Feelings About Current Location	4.04	1.80
IV. Income and Economic Incentives		
13. MILPAY	870.75	1630.62
14. Receive Special Pays--Allowances	0.59	0.58
15. Tot Spouse's Civilian Earnings	842.59	2457.41
16. Tot Family Income	870.51	5649.80
17. Tot Outstanding Debts	2.65	1.3
18. Value of Current Assets	2.82	1.28
19. Comparison of Current with Past Fin Sit.	2.63	1.21
20. RELPAY	0.75	0.75
V. Perceived Existence of Alternatives and Comparisons		
21. Recd Civilian Job Offers Past Year	0.62	0.49
22. If Left Wd Find Gd Civ Job	8.47	2.00
23. Wd Use Mil Skills--Civ Job	6.27	3.58
24. Family Btr with Me In Civ Job	1.53	0.82
25. Civ vs Mil Job--Immed Supe	1.91	0.94
26. Civ vs Mil Job--Having a Say	1.52	0.74
27. Civ vs Mil Job--Retmt Benef	2.48	1.78
28. Civ vs Mil Job--Med Benef	2.93	1.25
29. Civ vs Mil Job--Chnce Interst Wk	1.61	0.82
30. Civ vs Mil Job--Wages--Sal	1.22	0.54
31. Civ vs Mil Job--Chnce Promot	1.81	0.84
32. Civ vs Mil Job--Trng Opp	2.05	0.99
33. Civ vs Mil Job--People Work With	2.06	0.91
34. Civ vs Mil Job--Work Sched--Hr	1.55	0.87
35. Civ vs Mil Job--Job Security	3.15	1.15

TABLE IX (Continued)

Variable List	Mean	Standard Deviation
36. Civ vs Mil Job--Equipment	1.79	0.87
37. Civ vs Mil Job--Job Location	1.42	0.76
Dependent Variable		
38. Probability of Reenlistment	.17	0.18

TABLE X

Correlation Matrix of All Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. ENTAGE											
2. Gender	-.26										
3. Entry Marital Status	.26	-.07									
4. Current Marital Status	.06	-.02	.32								
5. Dependency	.05	.07	.32	.59							
6. Race	-.06	-.03	-.02	.01	-.07						
7. High School Diploma	.04	-.05	-.07	.01	-.02	-.01					
8. ACDUIOS	-.05	.07	.00	.13	.11	.09	.14				
9. Military Life As Expected	-.08	.11	-.02	-.04	-.01	-.08	.03	-.03			
10. Satisfaction With Mil Life	.10	-.19	-.04	.07	.03	-.10	-.00	-.02	-.39		
11. Assignment--Ship	-.18	.39	-.04	-.02	.03	-.02	-.05	.07	.17	-.32	
12. Feelings About Location	-.00	-.02	-.06	.06	.01	.02	.04	.15	-.13	.23	-.14
13. MILPAY	.03	-.15	.13	.56	.39	.01	.14	.40	-.12	.20	-.30
14. Recvd Special Pays--Allows	-.10	.18	-.15	.05	.03	.06	.12	.16	.10	-.11	.43
15. Spouse's Civ Earnings	.14	-.08	.27	.41	.13	.01	-.02	.01	-.05	-.00	-.01
16. Tot Family Income	.04	-.07	.22	.28	.17	.00	.11	.18	.01	-.05	-.07
17. Tot Outstanding Debts	.06	-.13	.13	.37	.26	.00	.06	.11	-.17	.15	-.12
18. Value Current Assets	-.00	.01	-.04	-.10	-.09	.10	.14	.16	.04	-.06	.05
19. Comparison of Fin. Sit.	.03	-.02	.02	.04	.06	-.04	-.09	-.15	.03	-.12	.05
20. RELMPAY	.04	-.20	-.02	.03	-.02	-.08	-.04	-.07	.03	.04	-.11

TABLE X (Continued)

Variable	12	13	14	15	16	17	18	19	20
1. ENTAGE									
2. Gender									
3. Entry Marital Status									
4. Current Marital Status									
5. Dependency									
6. Race									
7. High School Diploma									
8. ACDULOS									
9. Military Life As Expected									
10. Satisfaction With Mil Life									
11. Assignment--Ship									
12. Feelings About Location									
13. MILPAY	.19								
14. Recvd Special Pays--Allows	-.03	-.03							
15. Spouse's Civ Earnings	.02	.23	-.01						
16. Tot Family Income	-.00	.19	-.01	.45					
17. Tot Outstanding Debts	.03	.32	-.07	.20	.14				
18. Value Current Assets	.06	.01	.12	-.02	.15	-.19			
19. Comparison of Fin. Sit.	-.07	-.06	-.06	-.05	-.17	.15	-.21		
20. RELMPAY	.05	.11	-.01	-.01	-.06	.05	-.07	.00	

TABLE X (Continued)

Variable*	1	2	3	4	5	6	7	8	9	10
21. Recv Civ Jb Offers	-.07	.03	.09	.09	.02	.03	-.03	.04	.02	-.09
22. Find Gd Civ Jb	-.16	.14	.05	.09	.05	.01	.06	.10	-.15	-.19
23. Wd Use Mil Skil-Civ Jb	-.13	.04	-.06	.00	.04	-.00	.10	.36	-.15	.10
24. Fam Btr--Civ Jb	.13	.20	-.04	-.09	-.06	-.12	-.02	-.15	-.21	.52
25. Civ vs Mil Jb--Supe	.04	-.11	.02	-.02	-.03	.00	.08	.07	-.29	.30
26. Civ vs Mil Jb--Have Say	-.01	-.01	-.05	-.04	-.08	-.11	-.01	.01	-.17	.29
27. Civ vs Mil Jb--Retmt Bene	.03	-.01	.01	-.04	-.05	-.01	-.00	-.06	-.05	.13
28. Civ vs Mil Jb--Med Bene	.04	-.06	.03	-.12	-.10	-.06	-.05	-.17	-.07	.19
29. Civ vs Mil Jb--Insr Wk	.02	-.07	.06	-.00	-.03	-.02	-.05	-.13	-.21	.34
30. Civ vs Mil Jb--Wage-Sal	.18	-.21	.06	-.01	.01	-.03	-.00	-.03	-.07	.29
31. Civ vs Mil Jb--Prom Opp	.07	-.02	.04	-.04	-.03	-.09	-.02	-.01	-.16	.24
32. Civ vs Mil Jb--Trng	-.01	-.00	.02	-.02	.00	-.02	-.03	-.05	-.20	.25
33. Civ vs Mil Jb--Co-Work	.03	-.09	.01	-.00	-.01	-.04	.01	.02	-.23	.29
34. Civ vs Mil Jb--Sched Hr	.07	-.17	.01	-.04	-.05	-.02	.01	-.10	-.13	.26
35. Civ vs Mil Jb--Jb Sec	.05	-.08	.08	-.01	.02	-.07	.01	.00	-.11	.16
36. Civ vs Mil Jb--Jb Eq	.07	-.11	.00	-.02	-.05	-.03	-.03	-.11	-.14	.28
37. Civ vs Mil Jb--Jb Loc	.09	-.19	.00	.01	.01	-.01	-.01	.05	-.13	.33
38. Y'	.06	-.14	.01	.04	-.02	-.00	.03	-.01	-.12	.40

*Note: Unlabeled Variables:

1. ENTAGE
2. Gender
3. Entry Marital Status
5. Dependency
6. Race
7. High School Diploma
8. ACDULOS
9. Military Life as Expected
10. Satisfaction with Mil Life

TABLE X (Continued)

Variable *	11	12	13	14	15	16	17	18	19	20
21. Recv Civ Jb Offers	.05	-.02	.05	.03	.08	.08	.02	.04	.05	-.05
22. Find Gd Civ Jb	.10	.04	.08	.08	.06	.10	.01	.09	-.05	-.11
23. Wd Use Mil Skil-Civ	.07	.18	.15	.08	-.00	.08	.08	.07	-.11	-.09
24. Fam Btr--Civ Jb	-.24	.16	-.00	-.08	-.02	-.07	.02	-.04	-.11	.04
25. Civ vs Mil Jb--Supe	-.15	.20	.10	-.04	-.00	-.03	.02	.00	-.02	-.01
26. Civ vs Mil Jb--Have Say	-.10	.14	.01	-.09	-.03	-.00	.03	.01	-.17	-.01
27. Civ vs Mil Jb--Retmt Bene	-.06	.00	-.05	-.06	.01	.01	-.05	-.08	-.06	-.04
28. Civ vs Mil Jb--Med Bene	-.04	-.04	-.15	-.15	-.02	-.03	-.01	-.06	.04	.05
29. Civ vs Mil Jb--Insr Wk	-.15	.11	.03	-.15	-.00	-.02	-.00	-.03	-.04	-.02
30. Civ vs Mil Jb--Wage-Sal	-.17	.10	.02	-.09	.04	.03	-.00	.00	-.09	.12
31. Civ vs Mil Jb--Prom Opp	-.01	.09	-.06	-.03	.08	.04	-.05	.01	-.05	-.05
32. Civ vs Mil Jb--Trng	-.12	.14	-.05	-.15	.01	-.01	.00	-.02	-.01	-.00
33. Civ vs Mil Jb--Co-Work	-.20	.12	.10	-.06	-.01	.02	-.00	-.01	-.06	-.04
34. Civ vs Mil Jb--Sched Hr	-.34	.12	.03	-.19	-.03	.01	.00	-.03	-.09	.06
35. Civ vs Mil Jb--Jb Sec	-.13	-.04	.02	-.09	.00	-.03	-.02	-.03	-.05	.00
36. Civ vs Mil Jb--Jb Eq	-.17	.13	-.02	-.06	.02	.02	-.05	-.08	-.03	-.01
37. Civ vs Mil Jb--Jb Loc	-.25	.32	.12	-.16	.04	.01	.03	.03	-.08	.03
38. Y'	-.15	.00	.08	.00	-.03	-.04	.08	-.07	-.02	.08

*

Note: Unlabeled variables:

11. Assignment--Ship
12. Feelings Abt Loc
13. MILPAY
14. Recd Spec Pays
15. Spouse Civ Earn
16. Tot Fam Inc
17. Tot Outstng Debts
18. Value Current Assets
19. Comparison Fin Sit
20. RELMPAY

TABLE X (Continued)

Variable	21	22	23	24	25	26	27	28	29	30
21. Recv Civ Jb Offers										
22. Find Gd Civ Jb	.36									
23. Wd Use Mil Skil--Civ Jb	.12	.29								
24. Fam Btr--Civ Jb	-.17	-.30	.02							
25. Civ vs Mil Jb--Supe	-.03	-.11	.16	.25						
26. Civ vs Mil Jb--Have Say	-.11	-.14	.11	.24	.37					
27. Civ vs Mil Jb--Retmt Bene	-.07	-.17	-.03	.23	.15	.17				
28. Civ vs Mil Jb--Med Bene	-.10	-.24	-.11	.26	.13	.14	.54			
29. Civ vs Mil Jb--Insr Wk	-.11	-.13	.08	.28	.29	.33	.24	.26	-	
30. Civ vs Mil Jb--Wage-Sal	-.09	-.25	-.10	.34	.22	.24	.27	.27	.23	-
31. Civ vs Mil Jb--Prom Opp	-.13	-.14	.06	.25	.21	.27	.32	.33	.39	.25
32. Civ vs Mil Jb--Trng	-.06	-.07	.10	.24	.24	.26	.27	.33	.44	.20
33. Civ vs Mil Jb--Co-Work	-.07	-.13	.12	.24	.43	.24	.13	.19	.37	.18
34. Civ vs Mil Jb--Sched Hr	-.03	-.15	-.01	.28	.21	.15	.17	.16	.17	.23
35. Civ vs Mil Jb--Jb Sec	-.09	-.24	.01	.16	.21	.16	.36	.39	.20	.17
36. Civ vs Mil Jb--Jb Eq	-.11	-.18	.00	.30	.30	.23	.23	.20	.34	.26
37. Civ vs Mil Jb--Jb Loc	-.14	-.13	.14	.33	.25	.29	.12	.12	.33	.26
38. Y'	-.06	-.11	.05	.44	.11	.18	.13	.16	.19	.22

TABLE X (Continued)

Variable	31	32	33	34	35	36	37
21. Recv Civ Jb Offers							
22. Find Gd Civ Jb							
23. Wo Use Mil Skil-C Jb							
24. Fam Btr--Civ Jb							
25. Civ vs Mil Jb--Supe							
26. Civ vs Mil Jb--Have Say							
27. Civ vs Mil Jb--Retmt Bene							
28. Civ vs Mil Jb--Med Bene							
29. Civ vs Mil Jb--Insr Wk							
30. Civ vs Mil Jb--Wage-Sal							
31. Civ vs Mil Jb--Prom Opp							
32. Civ vs Mil Jb--Trng	.50						
33. Civ vs Mil Jb--Co-Work	.26	.31					
34. Civ vs Mil Jb--Sched Hr	.18	.20	.29				
35. Civ vs Mil Jb--Jb Sec	.35	.40	.29	.19			
36. Civ vs Mil Jb--Jb Eq	.27	.37	.27	.26	.26		
37. Civ vs Mil Jb--Jb Loc	.21	.28	.29	.31	.18	.24	
38. Y'	.09	.10	.14	.11	.13	.09	.18

of reenlistment. A final regression containing all five categories was block entered to measure the maximum total explanatory power of the key determinants. The regression results for each category are shown in Table XI.

TABLE XI

Results of Separate Regressions by Major Category

	Category	R^2	F Significance
I.	Demographic	.03	.0614
II.	Tenure	.0001	.8253
III.	Cognitive/Affective Orientation	.17	.0000
IV.	Income and Economic Incentives	.03	.1222
V.	Perceived Existence of Alternatives and Comparisons	.23	.0000
	All Five Categories	.30	.00001
	N = 479		

A total explanatory power (R^2) of .30 was achieved when all five categories entered one regression. The largest explanatory power of any single category as measured by an R squared of .23 was that of Category V, "perceived existence of alternatives and comparisons." The set of variables comprising Category V explained 77% (.23/.30) of the maximum total variation of the logistic form of reenlistment intentions. The category having the second largest single explanatory power was Category III, "cognitive/affective orientation," with 57% (.17/.30) of the explanatory power of all blocks together.

For Category II, "tenure," the 6 year obligors have more tenure (average 4 yr LOS = 3.5 yr; average 6 yr LOS = 5.5 yr)

and slightly higher average age than the 4 year obligors. Therefore one would expect to observe a significant difference of reenlistment probability between the 4 and 6 year first termers. However, Table XI indicates reenlistment intentions are not significantly different for the 4 year obligor compared to the 6 year obligors (R^2 = .0001, F significance = .83).

Each of the two remaining single categories--I, "demographic" and III, "income and economic incentives," could account for only 10% (.03/.30) of the total explanatory power when all five categories were entered into the equation. These results strongly indicate that both the demographic and economic variables were of little significance in explaining the variation in first term reenlistment intentions.

C. ANALYSIS OF INDIVIDUAL DETERMINANTS OF TURNOVER

When a single stepwise regression was used to measure the individual explanatory power of reenlistment probability among all variables, only three predictor variables entered the regression equations as shown in Table XII.

The most powerful single explanatory variable is "family better off with respondent in a civilian job." The more a first term enlistee feels that his/her family would be better off with the respondent in a civilian job, the lower the respondent's intention to reenlist. If military employment is not perceived as accommodating family needs then strong motivation for job change is provided. This variable

TABLE XII

Regression Analysis of Individual Determinants

Variable	b*	R^2
Family Better Off With Me in Civilian Job	.40	.20
Satisfaction with Military Life	.18	.24
Feelings About Location	-.06	.25

N = 479

*p ≤ .0001

may be capturing the effects of other specific variables which might be more revealing of how and why civilian job opportunities would contribute more favorably to a family's welfare. This issue is explored later in this section.

Satisfaction with military life was the second most significant variable. As satisfaction with military life decreases, intention to reenlist declines. This variable may likewise be capturing the effect of other variables. This issue is taken up later in this section.

The third variable, feelings about location, has a negative coefficient. As an individual becomes more settled and certain about remaining in his current location, the respondent is less likely to want to relocate by transferring away from the present locale and reenlistment intentions decline. The survey question related to this variable is

vague and open to interpretation. Location may be considered by the respondent to mean either location of duty station or location of family residence.

The three predictor variables of family better with me in a civilian job, satisfaction with military life, and feelings about location, do not yield clear interpretive results. They are linked to and influenced by other pecuniary and non-pecuniary factors.

A regression analysis was conducted to explore what variables may lay behind the assessment of family better off with me in military life. The procedure was to omit these two variables from consideration and determine if any new explanatory variables entered the regression equation. As shown in Table XIII, six new explanatory variables were considered to be significant.

TABLE XIII

Regression Results When Two Variables Are Deleted*

Variables	b	R^2
Civilian vs Military Job--Wages-Salary	.25	.05
Civilian vs Military Job--Interesting Work	.11	.07
Assignment--Ship	-.32	.09
Special Pays--Allowances	.21	.09
Civilian vs Military Job--Medical Benef.	.08	.10
Civilian vs Military Job--Having a Say	.13	.10

N = 479; $p \leq .0001$; Total variables entered = 35

*Two variables omitted: Family Better off with Respondent in a Civilian Job, and Satisfaction with Military Life.

Four civilian versus military job comparison variables from Category V were significant. The four variables with their R squared values are: wages-salaries, .05; interesting work, .07; medical benefits, .10; and having a say, .10. One additional variable of significance, assignment--ship (R^2 = .09) came from the cognitive/affective orientation, Category III and one additional significant variable, special pays--allowances (R^2 = .09), came from the income and economic incentive, Category IV.

The more an enlistee perceives that the military job factors of wages, interesting work, medical benefits and having a say are more restrictive and less competitive than what might be available in the civilian job sector, his/her probability of reenlistment intentions decline. If a respondent was currently on shipboard duty, the probability of reenlistment declined. This may be due to shipboard tours of duty being associated with negative job factors such as long hours and constrained working conditions. Also, shipboard duty and tour lengths impact negatively on family separation and are usually associated with declining reenlistment intentions. As special pays increase, reenlistment probabilities also increase. Even though the explanatory power of the new set of variables decreased, from .30 to .10, the new regression results have compatible explanatory power of turnover models such as those found in the literature, e.g., Arnold and Feldman (1982).

D. SUMMARY

This thesis developed and tested a model to examine reenlistment intentions among first term Navy men and women who are within one year of their end of service contract. The influences of various non-pecuniary and pecuniary explanatory variables were explored on the likelihood of reenlistment. A logistic form of reenlistment intentions was used to test for significant explanatory variables.

The analysis showed that the variable measuring the respondent's perception of family being better off with the respondent in a civilian job was the most influential factor (R^2 = .20) associated with reenlistment intentions. Satisfaction with military life was the second most influential variable (R^2 = .24).

Of particular significance is that biodemographic variables such as gender, race, and education level and the tenure variable, 4 YO vs 6 YO, were not significantly explanatory variables for reenlistment intentions. Also, when the two predominant equation variables, family better off with the respondent in a civilian job and satisfaction with military life, were intentionally removed from the candidate variable list, and a new regression conducted, neither demographics nor tenure were reflected in the new equation. Only one pecuniary variable, special pays--allowances, was of direct influence when it entered into the follow-up regression equation. These results would suggest that previous research which indicated significant explanatory power to demographic,

age and tenure variables relative to turnover, focused upon a larger window of time to end of contract or time of service (LOS).

E. POLICY IMPLICATIONS

There are several policy implications of the empirical results reported by this thesis. First, the relevance of job factors to reenlistment intentions for first termers within 1 year EAOS suggests that enlistees are performing some comparative analysis between opportunities and advantages of civlian versus the military job for such elements as wages--salaries, interesting work, medical benefits and participation in decision matters. At present (1982) the military offers improved pay comparability. Pay must remain comparable or better with the civilian sector to retain enlistees.

This Navy sample of 479 first termers also represents a diversified spectrum of demographic characteristics such as gender, race, education level, age, LOS, dependency, and marital status. The demographic variables were not significant in any of the analyses conducted. The lack of influence from biodemographic variables would suggest that non-pecuniary policies pertaining to recruiting first termers to ship over should not be specifically targeted to a specific group (4 or 6 year obligor).

A second recommendation would be to continue support of bonus programs and special pays such as sea pay. The bonus

program would serve as an occupational incentive in undermanned ratings. The special pays would also serve as a first term incentive to reimburse the service member for encountered hardships as family separation due to sea duty.

Rules and legislation might be reduced for lower rated enlistees to enhance military life such as expanding eligibility for government accommodations to married first termers. 41.8% were married by one year to EAOS as compared to 7.5% at service entry.

The Navy in particular might consider investing in policies which could enhance customer services provided in association with medical benefits, and improving both professional and personal command communications through better organizational development and management at command level. It would appear that respondents desire interactive communications, a challenging job and interesting work. Shipboard assignment for the married first termers are a reality, however this reality requires due consideration of favorable second choice duties as can best be accommodated by the Navy.

If the service can project a professional, demanding, yet rewarding career with opportunities for increased responsibilities, seniority, and financial incentives comparable with the civilian sector, the first termer will be likely to reenlist with career aspirations.

F. FUTURE ANALYSIS

The two predictors, family better with respondent in a civilian job and satisfaction with military life, require further empirical analysis. Specific job aspects that are related to these general concepts need to be identified in order to pursue appropriate policies to address their effects. Based upon the turnover intention model suggested in Chapter II and considering this chapter's results, a revised model is depicted in Figure 7.

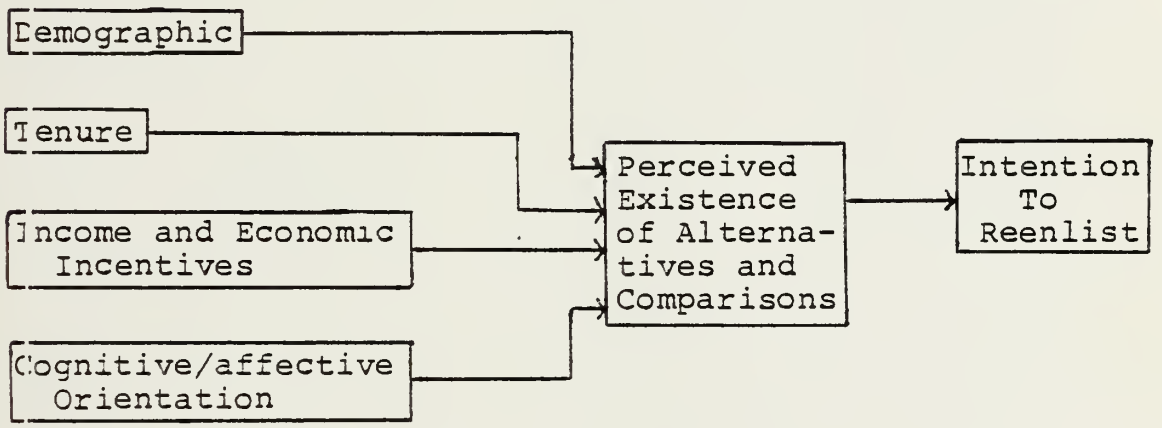


Figure 7. A Revised Model of Turnover Intentions

The revised model suggests that for first termers the majority of key determinants affect intention to turnover through the block "Perceived Existence of Alternatives and Comparisons," when less than one year remains to end of contract, for enlistees between 17-24. This principal category appears to capture the underlying influences of some economic and cognitive/affective component variables.

It is further suggested that for this sample, perceived existence of alternatives and comparisons serve as the antecedent for intention to reenlist.

Future surveys of a similar nature should include questions which are response specific or questioned specifically to reduce multiple interpretation. In particular this survey's questions about expectations of military life, and satisfaction with job or military life were difficult to interpret into a policy perspective.

APPENDIX A

FREQUENCY DISTRIBUTIONS AND CONDESCRIPTIVES FOR CANDIDATE VARIABLES

Variable	Category	Absolute Frequency	Relative Frequency (%)
I. DEMOGRAPHIC			
Age at Service Entry (Q42)	17	84	17.5
	18	198	41.3
	19	99	20.7
	20	41	8.6
	21	25	5.2
	22	18	3.8
	23	8	1.7
	24	6	1.3
Current Age (Q41)	19	5	1.0
	20	20	4.2
	21	103	21.5
	22	99	20.7
	23	104	21.7
	24	74	15.4
	25	39	8.1
	26	17	3.5
	27	13	2.7
	28	4	0.8
	29	1	0.2
Gender (Q40)	Female	44	9.2
	Male	435	90.8
Entry Marital Status (Q45)	Wido--Single	443	92.5
	Mar-Sep-Div	36	7.5
Current Marital Status (Q45)	Wido--Single	279	58.2
	Mar-Sep-Div	200	41.8
Dependency (Q54)	None	371	77.5
	Some	108	22.5
Race (Q44)	Black	44	9.2
	White	435	90.8
High School Diploma (Q53)	Yes	57	11.9
	No	422	88.1

APPENDIX A (Continued)

Variable	Category	Absolute Frequency	Relative Frequency (%)
II. TENURE			
ACDULOS	4 Yr Obligor	308	64.3
	6 Yr Obligor	171	35.7
Years of Service Intended (Q15)	Mean: 5.54 Std Dev: 3.75 Min: 3 Max: 40		
III. COGNITIVE/AFFECTIVE ORIENTATION			
Completion of Current Enlistment (Q14)	3 Mos <	92	19.2
	3-6 Mos	211	44.1
	6-9 Mos	152	31.7
	9-12 Mos	24	5.0
Current Education (Q52)	10-12 Grade	351	73.3
	1-5 Yr College	128	26.7
Military Life As Expected (Q104A)	Strongly Agree	15	3.1
	Agree	162	33.8
	Neither A/D	82	17.1
	Disagree	169	35.3
	Strongly Disagree	51	10.6
Satisfaction With Mil Life (Q105)	Very Dissatisfied	148	30.9
		141	29.4
		80	16.7
		61	12.7
		31	6.5
		13	2.7
	Very Satisfied	5	1.0
Assignment-Ship (Q5)	Yes	298	62.2
	No	181	37.8
Feelings About Current Location (Q7)	Very Dissatisfied	52	10.9
		59	12.3
		71	14.8
		93	19.4
		86	18.0
		74	15.4
	Very Satisfied	44	9.2

APPENDIX A (Continued)

Variable	Category	Absolute Frequency	Relative Frequency (%)
IV. INCOME AND ECONOMIC INCENTIVES			
Monthly Basic Pay (Q69)	Mean: $589.11 Std Dev: 49.99 Min: $400 Max: $1000 Range 600		
Monthly BAQ (Q70)	Mean: $ 78.26 Std Dev: 81.81 Min: $ 0 Max: $250 Range 250		
Monthly BAS (Q71)	Mean: $ 38.53 Std Dev: 43.57 Min: $ 0 Max: $100 Range 100		
MILPAY ([Q69+Q70+Q71]x12)	Mean: $8470.75 Std Dev: 1630.62 Min: $4800 Max: $13,320 Range 8,520		
Receive Special Pays— Allowances (Q73)	Yes	289	60.3
	No	188	39.2
Spouse Civ Earnings (Q90)	Mean: $842.59 Std Dev: 2457.41 Min: $ 0 Max: $26,000 Range 26,000		
Total Family Income (Q93)	Mean: $8470.51 Std Dev: 5649.80 Min: $ 0 Max: $70,000 Range 70,000		
Total Outstanding Debts (Q94)	Mean: 2.65 Std Dev: 1.3 Min: 1 Max: 7 Range 6		
Value Current Assets (Q95)	Mean: 2.82 Std Dev: 1.28 Min: 0 Max: 7 Range 7		
Comparison of Current Financial Situation With 3 Years Ago (Q96)	Lot Better Now	98	20.5
	Somewhat Btr Now	134	28.0
	About Same	138	28.8
	Somewhat Wrs Now	66	13.8
	Lot Wrs Now	43	9.0
Expect Civilian Earnings (Q99)	Mean: $13,754.22 Std Dev: 4934.30 Min: $800 Max: $49,900 Range 49,100		
RELMPAY (MILPAY/Q99)	Mean: .75 Std Dev: .75 Min: .14 Max: 10.94 Range 10.80		

APPENDIX A (Continued)

Variable	Category	Absolute Frequency	Relative Frequency (%)
V. PERCEIVED EXISTENCE OF ALTERNATIVES AND COMPARISONS			
Received Civilian Job Offers— Past 12 Months (Q97)	Yes	298	62.2
	No	181	37.8
If Left Service Now Would Find a Good Civilian Job (Q98)	No Chance	2	.4
	Very Slt Psblty	2	.4
	Slt Psblty	4	.8
	Some Psblty	8	1.7
	Fair Psblty	10	2.1
	Fairly Gd Psblty	21	4.4
	Gd Psblty	32	6.7
	Probable	30	6.3
	Very Probable	64	13.4
	Almost Sure	95	19.8
	Certain	211	44.1
Would Use Military Skills— Civilian Job (Q100)	No Chance	50	10.4
	Very Slt Psblty	34	7.1
	Slt Psblty	18	3.8
	Some Psblty	21	4.4
	Fair Psblty	36	7.5
	Fairly Gd Psblty	15	3.1
	Gd Psblty	43	9.0
	Probable	27	5.6
	Very Probable	48	10.0
	Almost Sure	50	10.4
	Certain	137	28.6
Family Better Off With Respondent in a Civilian Job (Q104D)	Strongly Agree	310	64.7
		99	20.7
		60	12.5
		7	1.5
	Strongly Disagr	3	.6

APPENDIX A (Continued)

	Civ Lot Better	Civ Slightly Better	About Same	Civ Slightly Worse	Civ Lot Worse
Civilian vs Military Job (Q102)					
A. Immediate (Abs Fre) Supervisors (Rel Fre)	216 45.1	111 23.2	134 28.0	17 3.5	1 .2
B. Having a Say	293 61.2	133 27.8	45 9.4	7 1.5	1 .2
C. Retirement Benefits	127 26.5	119 24.8	125 26.1	90 18.8	18 3.8
D. Medical Benefits	85 17.7	91 19.0	123 25.7	135 28.2	45 9.4
E. Chance Interesting Work	276 57.6	123 25.7	69 14.4	11 2.3	0 0
F. Wages—Salaries	397 82.9	64 13.4	14 2.9	3 0.6	1 0.2
G. Chances of Promotion	208 43.4	170 35.5	87 18.2	13 2.7	1 0.2
H. Training Opport.	173 36.1	153 31.9	115 24.0	33 6.9	5 1.0
I. People Work With	170 35.5	122 25.5	176 36.7	10 2.1	1 0.2
J. Work Schedule—Hrs	315 65.8	83 17.3	65 13.6	13 2.7	3 0.6
K. Job Security	64 13.4	52 10.9	154 32.2	167 34.9	42 8.8
L. Job Equipment	235 49.1	120 25.1	115 24.0	9 1.9	0 0
M. Job Location	345 72.0	73 15.2	54 11.3	6 1.3	1 0.2

APPENDIX A (Continued)

Variable	Category	Absolute Frequency	Relative Frequency (%)
VI. PROBABILITY OF REENLISTMENT			
Intention to Reenlist (Q20)	No Chance	405	84.6
	Very Slt Psblty	14	2.9
		15	3.1
		7	1.5
		6	1.3
		11	2.3
	Almost Certain	2	.4
	Sure	19	4.0
Linear Probability (Y)	Mean: .165	Std Dev: .184	
	Min: .1	Max: .9 Range .8	
Logistic Probability (Y')	Mean: -1.83	Std Dev: 1.01	
	Min: -2.20	Max: 2.20 Range 4.39	

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